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Observations
ON
PURPURA OF THE URINARY TRACT

Based on a Presidential Address delivered before the Section of Urology of the Royal Society of Medicine

BY FRANK KIDD, M.CHIR. CAMB., F.R.C.S. ENG.,
CONSULTING SURGEON TO ST. PAUL'S HOSPITAL FOR DISEASES OF THE GENITO-URINARY ORGANS AND SKIN.

(*With Coloured Plate.*)

SINCE 1912 I have met with a considerable number of cases of purpura of the urinary tract and for my present purpose have analysed 24 of them.

Purpura is characterised by spontaneous extravasations of blood into the skin, mucous membranes, joints, retinæ, and interstitial tissues. The resulting lesions in skin or mucous membrane are called petechiæ. These are blood-red or purple spots and patches which may be rounded, ovoid, linear or irregular in shape, and vary in size from that of a pin's-head to patches nearly half an inch in diameter. Occasionally they assume the character of large bruises or even hæmatomata. They do not disappear on pressure, but in a few days they turn brown and then fade away altogether. Hæmorrhages can also be observed in the interstitial tissues of the viscera in cases of purpura or "the hæmorrhagic disease," as it is often called. That hæmaturia is of common occurrence in cases of purpura has been recognised for many years, but it is remarkable that petechiæ of the bladder should have escaped recognition by cystoscopists for so long.

I have included in these 24 cases only those in which it has been possible to prove the condition to be one of purpura. All of them came up as cases of hæmaturia for diagnosis of the possible cause. Many of them presented petechiæ on the skin. The majority presented petechiæ in the bladder as viewed by the cystoscope. Some of them showed petechiæ in the mucous membrane of kidneys removed for dangerous hæmaturia. Some presented joint swellings, presumably due to extravasation of blood into the joints. Others had bleeding from the bowel, nose, or teeth, and one had nephritis. During the same period I have met with a number of cases of hæmaturia in which the bleeding observed to come from one or both kidneys has cleared up, and the clinical course has suggested that the condition was one of purpura of the kidney. As in such cases absolute proof has not been possible, they have not been included in the analysis. But I feel sure that such purpuric bleeding from the kidney is not uncommon, and explains many cases of painless hæmaturia. A purpuric bladder is always painful, but a purpuric kidney usually causes no pain.

The observations suggest that purpura of the urinary tract can be classified into three main clinical groups:—

(1) *Purpura simplex*, which exhibits a single or a few mild attacks of hæmaturia, soon clearing up and not thereafter repeated.

(2) *Purpura recurrens*, which exhibits repeated severe attacks over a period of years and which may gradually react to treatment.

(3) *Purpura fulminans*, where one or two severe attacks appear within a short time of one another and lead to death within a few weeks or months.

Purpura of the urinary tract appears in two clinical guises:—

(1) *Vesical*, with sudden onset of profuse painful hæmaturia, but with little or no systemic disturbance. The diagnosis can be readily made by immediate cystoscopy, and the prognosis is good.

(2) *Renal*, with sudden onset of profuse painless hæmaturia and little symptomatic disturbance apart from severe loss of blood. The cystoscope reveals blood pouring from one or both kidneys. Pyelograms are normal. The diagnosis is made in some cases by nephrectomy, in others by the presence of purpura elsewhere in the body, by the examination of the blood, or by the tourniquet test. Often the diagnosis can only be provisional.

DIAGNOSIS.

For a long time it has been the custom in urological circles to talk of "essential hæmaturia," a term which begs the question and obstructs research. I prefer to speak of "cases of hæmaturia of which the cause has not been determined." I believe that a number of the cases usually labelled essential hæmaturia are in reality cases of purpura of the kidney, that purpura is not at all an uncommon cause of hæmaturia from the bladder or the kidneys, and that its nature is missed either because cystoscopy is not carried out at an early period when petechiæ could be observed in the bladder, or because, where pain and petechiæ in the bladder are absent, there is usually no occasion to remove one kidney, and so the purpuric nature of a bleeding kidney cannot be determined by direct observation. In all cases of unexplained hæmaturia a rigid examination of the skin, joints, retinæ, and the hæmopoietic system may reveal the true nature of the case. It is the rule for the patient to have failed completely to notice even quite large petechiæ on the skin, so that these need to be sought for specially. The diagnosis can be readily made if cystoscopy be carried out within a day or two of the bleeding and if the bladder is then seen covered by petechiæ. In these cases the hæmaturia is painful. Neoplasm is excluded if an early cystoscopy reveals profuse bleeding from one kidney, and a pyelogram shows a perfectly normal outline to the pelvis of that kidney. In these cases the hæmaturia is usually painless. If the blood shows a marked diminution or absence of platelets, prolonged bleeding time, normal clotting time, or the presence of a characteristic non-retractile fibrin in the clot, then the diagnosis of thrombocytopenia purpura can be confidently made. If petechiæ are observed in other parts of the body the diagnosis is at once apparent. The static resistance test of Hess may throw light on the diagnosis. A tourniquet is applied for three minutes to one arm; in cases of purpura this should produce purpuric spots on the skin of the arm. Even so, a large number of cases must remain not proven, but if it is once recognised that painless purpuric bleeding from one or both kidneys is not uncommon, then the minds of urologists will be set at rest. It has been the fashion to insist that the commonest cause of unilateral hæmaturia is a neoplasm, but it is doubtful if neoplasm of the kidney is as common as has been taught. With this teaching in his mind the urologist has been rendered too anxious, and has been inclined too readily to remove a bleeding kidney in case he might be missing an early neoplasm. The results of removing a large late neoplasm of the kidney are on the whole disappointing, and the only chance of permanent cure resides in making the diagnosis of malignant kidney before the tumour has become so large as to be palpable. Again, it is in the highest degree unwise to open a kidney at operation to see if it contains a neoplasm. If it does and if it has been opened, recurrence within a year or less is almost invariable. If a surgeon is to get permanent results and any real cures of neoplasms of the kidney, he must make up his mind as to the diagnosis before he starts the operation, and must remove the kidney intact within its perinephric and fatty capsule. If the capsule is torn—apart from any incision of the kidney—an early recurrence is the rule rather than the exception. These considerations have led urologists in the past 20 years to remove a large number of kidneys suspected of neoplasm when none was present. Many of these cases were in all probability cases of purpura.

The remedy lies in recognising that neoplasm of the kidney is comparatively rare and is by no means a common cause of hæmaturia. Pyelography, repeated several times if necessary, should invariably be carried out in all cases of unilateral hæmaturia. If the pyelogram shows no evidence of neoplasm it

should be trusted and the patient kept under observation and the kidney left alone. Provided the hæmorrhage is not alarming no harm can be done by waiting and taking repeated pyelograms at intervals of two to three months. In some cases the hæmorrhage is so severe as to endanger life, and it will be necessary to operate. In seven cases I have had to remove the kidney for grave hæmaturia due to purpura, and in one of my cases of purpura of the bladder a bleeding kidney had been previously removed by another surgeon. I am certain that I have left in situ quite a number of purpuric kidneys, where I have observed unilateral hæmaturia and repeated pyelograms have been negative. In some cases the hæmaturia has been repeated several times, in others it has never been repeated. I have also removed a certain number of profusely bleeding kidneys wherein no purpuric lesions could be seen in the pelvic mucous membrane, but where on section a certain amount of interstitial hæmorrhage was apparent lying between the tubules. I believe that these cases should be classed in the same group and should be considered as instances of interstitial hæmorrhage into a viscus caused by purpura or "the hæmorrhagic disease."

Differential Diagnosis.

The differential diagnosis from other causes of vesical bleeding, especially hæmorrhagic or tuberculous cystitis, is readily made by the cystoscopic observation of petechiæ scattered throughout the bladder, in between which the mucous membrane appears healthy (Fig. I.). The differential diagnosis from other causes of renal bleeding is more difficult. Common causes, such as infection by the colon bacillus, or the tubercle bacillus, calculus, and hydronephrosis, are detected by the usual routine methods. Less common causes of renal bleeding are a high systolic blood pressure, which may be associated with petechiæ on the skin, with or without "granular" kidney; the various anæmias and leukæmias; and polycythæmia. The size of the spleen should be estimated by palpation, percussion, and X ray examination. It must be clearly emphasised that in all cases of hæmaturia a most rigid and exhaustive study must be made of the blood, including the clotting time, bleeding time, and a platelet count. By this means not only can cases of thrombocytopenia be marked off and if necessary treated by splenectomy, but it may also be possible to separate off cases of aplastic anæmia, pernicious anæmia, leukæmia, cholæmia, and early cases of polycythæmia. I have met with three cases of polycythæmia where profuse unilateral hæmaturia was the earliest symptom. In the first I removed the bleeding kidney, in the other two, taught by experience of the first case, I was able to make the diagnosis by examination of the blood.

Scurvy may be mistaken for purpura and is in all probability an instance of a true purpura where the cause is known—namely, vitamin C deficiency due to lack of fresh fruit and vegetables. The platelets are not deficient in numbers. Hæmophilia can usually be distinguished by its hereditary nature, its history, and the fact that the clotting time of the blood is delayed, whereas the clot itself is normal and there is no deficiency of blood-platelets. Hæmoglobinuria is distinguished by expert examination of the urine. One of the commonest causes of profuse hæmaturia is acute pyelitis. The sudden onset with a rigor and high fever, the presence of pyuria as well as bacilluria, the enlarged tender and painful kidney, and the quick response to alkaline treatment should differentiate pyelitis from purpura.

Blood Platelets in Relation to Purpura.

Denys, a Belgian histologist, called attention in 1887 to the fact that in some cases of purpura there was a low platelet count. Hayem in 1890 confirmed this and made the following observations:—

(1) That there was no appreciable change in the red blood corpuscles.

(2) That there might be a considerable diminution in the number of platelets and that those present might be of "giant type."

(3) That there was no constant change in the leucocytes.

(4) That the blood coagulated in normal time, but that the fibrinous reticulum developed as fibrin of unusual size, did not retract from the walls of the glass vessels into which the blood had clotted, and did not squeeze out the serum from the clot.

In 1912 Duke called attention to an additional fact—that though the clotting time was normal, yet the bleeding time of a pin-prick might be considerably prolonged. A prick which should cease to bleed in three minutes might bleed for as as long as an hour. He studied the platelets in 31 cases and in 14 he found a platelet count below 65,000 per c.mm. of blood, the normal being 200,000 to 300,000. If the platelet count was below 10,000 the case was severe, if below 1000 very severe. Ledingham and Bedson advanced these observations further by work on guinea-pigs, rats, rabbits, and goats. They showed that an antiguinea-pig platelet serum produced purpura in guinea-pigs and also an early extensive fall in the platelets; if recovery ensued the platelets rose again to normal. The effect was specific and was not produced by heterologous sera. An antiplatelet serum had no effect on the leucocytes and an antileucocyte serum had no effect on the platelets, yet both would produce a partial clumping of the red blood cells. Antiplatelet serum contains a specific antibody for platelets, and this supports the view that platelets are independent elements of the blood and bear no relation to the red cells or leucocytes. Platelets appear to supply an indispensable thrombogenetic element, and if this is reduced the animal is liable to purpura. These results have since been confirmed by Lee and Robertson, Gottlieb, and Watabiki. Duke produced purpura in rabbits by repeated injections of diphtheria toxin and benzol, which destroy platelets.

Purpura in man has been noted after injections of salvarsan (Anwyl-Davies, Labbé and Langlois, Wydooghe and Ferond). It has also been observed in benzol poisoning (Anderson, Boyd, and Jackson, and in iodine poisoning (Stephen Mackenzie). I have observed it in two cases after injections of streptococcal vaccine. General purpura has been provoked in rabbits by repeated doses of X rays (Lacassagne, Lavedan, Léobardy). Frank again called the attention of clinicians to the low platelet count in some cases of purpura and suggested the term thrombocytopenia for this class of case. Kaznelson observed a case of purpura with thrombocytopenia where the spleen was enlarged. Arguing that the enlarged spleen might be actively destroying the platelets, he had the spleen removed at operation by Scloffer, with complete cure of the patient. In 1918 and in 1919 he reported further cases of successful splenectomy for this trouble. Hitzrot reported further cases and Edwin Beer reported five cases of splenectomy for this class of purpura, four of which were successful, and states that some 50 cases have now been reported in the literature of splenectomy for thrombocytopenia with the hæmorrhagic diathesis or purpura. He considers that splenectomy can only be of avail in purpura recurrens and not in purpura fulminans. In some of Beer's cases the number of platelets increased after splenectomy, but dropped again in course of time; the hæmorrhages did not recur, however, and the patients appeared to be cured. Brill and Rosenthal noted the same after two cases of splenectomy. This fits in with the observation of Service, who cured a case of diabetes with low platelet count of the bleeding tendency by insulin and repeated blood transfusions. Yet the blood-platelets remained low. Beer could produce no evidence by examining the blood from the splenic vein and artery that the spleen did destroy platelets. Yet the removal of the spleen appears to remove the tendency to hæmorrhage.

The Problem of Causation.

The heart of the problem still awaits solution. Brill and Rosenthal suppose that the spleen must in some way cause the capillary walls of the blood-vessels to become sensitive to circulating toxins. They say the platelets are not directly concerned in

causing the bleeding tendency. Beer suggests: (1) that there is a defective formation of platelets in the bone-marrow; (2) that circulating toxins destroy the platelets; (3) that the spleen destroys the platelets. None of these hypotheses covers all the facts. Spence has analysed 101 published cases of splenectomy for purpura. The bleeding tendency was cured in 69 and 21 died of the operation. He agrees with Beer that splenectomy is only suitable for chronic relapsing cases. He divides the cases into three types in an ingenious attempt to formulate a theory of the action of the spleen and reticulo-endothelial system in causing purpura. Giffin reports from the Mayo Clinic a number of cases of unusual types of hæmorrhagic disease which serve to show that the problem of causation can best be solved by further research on clinical cases. Conner and Bumpus conclude that there is not enough evidence at hand to prove that essential hæmaturia is ever localised purpura, or due to a deficiency of blood-platelets, but the evidence rather suggests that this is true in some cases.

Local Infective Foci as a Cause.—It appears that there there are several different types of purpura, with differing causation, but that in a number of cases a local focus of infection can be found if carefully sought, and its removal may cure the tendency to hæmorrhage. The infection is most likely to be due to a streptococcus, but it may probably be due to any bacterium, such as the colon bacillus, *Staphylococcus aureus*, pneumococcus, meningococcus, and the viruses of small-pox or measles. The local focus is most likely to be found in the teeth, tonsils, accessory air sinuses, middle ear, or bowel. Bradburn reports a case of purpura cured by removal of septic teeth, and in a number of the cases reported above and in those reported by Moreland McCrea the removal of septic teeth or septic tonsils appeared to lead to a cure. In three of my cases purpura developed the day after the extraction of septic teeth, and in another after the removal of septic tonsils. Similar happenings have been reported by Kleeblatt (teeth), by Robson after the removal of a rusty nail from the foot, by Kretschmer after an operation for osteomyelitis, by Clay and Golden after an operation for mastoiditis. Wadsworth reported a case of bilateral renal calculi with streptococci and pyuria that developed purpura. I have observed two cases of severe purpura in women associated with pyelitis due to the colon bacillus. In each case renal lavage cured the condition.

Classification.

Attempts to classify the purpuras too closely on a clinical basis seem apt to lead to confusion. The simplest way to look at the condition is to realise that purpuric bleedings in any situation are only a symptom and not a disease; that adequate classification will only become possible when a large number of different causes that may give rise to the symptom of purpura have become adequately recognised and proved; that purpura in the skin can be associated with bleedings into any mucous membrane or viscus, and that the cases can fall clinically into three main groups: simple, recurrent, and fulminating. The best classification so far attempted appears to be that of Brill and Rosenthal. This has been somewhat modified below in the light of further clinical observations made in the last few years. In the first place, all cases of purpura can be classified by an examination of the blood into two main groups: (1) the thrombocytopenic, (2) the non-thrombocytopenic. In both it is possible that injections of sera, blood, and proteins may do good, but it is only in the first group that splenectomy has so far been employed with success.

In the second place, cases of purpura may be classified into: (1) those in which a proximate cause is apparent and which may be removable; (2) those in which the cause is unknown.

(1) Those in which a proximate cause is apparent.

(*a*) *Bacterial Poisons.*—Streptococci, staphylococci, pneumococci, meningococci, small-pox, measles, acute rheumatism, local infective foci in teeth, tonsils, sinuses, middle ear and bowel, trench nephritis (Stevens and Peters), pyelitis.

(*b*) *Chemical Poisons.*—Turpentine, quinine, belladonna, iodine, benzol, arsenic, salvarsan, snake venom.

(*c*) *Intrinsic Metabolic Poisons.*—Cholæmia, anaphylactic agents.

(*d*) *The Poisons Generated in Diseases of the Hæmopoietic System.*—The leukæmias, aplastic anæmia, pernicious anæmia, Banti's disease.

(*e*) *Vitamin Deprivation.*—Scurvy, rickets.

(*f*) *Functional Changes in the Walls of the Blood-vessels.*—Schindler has reported two cases in victims of religious mania which were cured by suggestion.

(*g*) *Changes in Blood Pressure.*—High blood pressure, senile purpura, purpura of the menopause.

(2) Those in which the cause is unknown, so-called idiopathic purpura or the hæmorrhagic disease.

Prognosis and Treatment.

In the 24 cases analysed the 16 vesical cases all recovered quickly, four of the nephrectomy cases recovered completely, two of the nephrectomy cases still suffer from mild recurrent attacks of hæmaturia but are definitely improved, and two died in a few months despite nephrectomy. Stephen Mackenzie states that most cases of purpura recover in the end, but that 15 per cent. die chiefly from nephritis, endocarditis, or loss of blood.

In 8 of 24 fulminating cases and cases with grave hæmaturia it was necessary to resort to nephrectomy. In the mild cases, especially in children, the treatment most likely to prove efficacious seemed to be to give 25 c.cm. of antistreptococcal serum by the mouth every 48 hours for two or more doses, and to attend to the teeth and tonsils. The serum when given by the mouth did not appear to lead to anaphylaxis, and it certainly produced as profound an effect as when given under the skin. Calcium lactate appeared to have no ameliorating action. Possibly an active preparation of parathyroid gland with calcium might give better results. In all cases it is probably wise to give large doses of alkalis according to Blum.

Most marked benefit was obtained in the majority of relapsing cases by giving antistreptococcal serum by the mouth three times in a week every two or three months. At the same time all teeth shown by the X rays to be diseased were dealt with in easy stages, and the tonsils, if diseased, were enucleated. In one case removal of a heavily infected appendix cured the trouble, and in two others an intestine heavily infected with *Streptococcus fæcalis* received treatment, and with the diminution of the streptococcus in the stools the tendency to hæmorrhage disappeared.

Autogenous streptococcal vaccines were used in two cases. In small doses they did no harm, but effected no real improvement. If the dose was too large it at once produced an attack of purpura.

If no local focus of bacterial infection can be detected in the teeth, throat, upper air passages, and bowel, resort should be had to the more severe methods, which are, in order of increasing severity: auto-serotherapy, direct transfusion of homologous blood, protein shock therapy, and splenectomy.

Effect of Serum.

Weil, in 1905, showed that in cases of hæmophilia the blood could be rendered normal for a time by subcutaneous injections of normal horse serum; surgical operations could be safely carried out in hæmophiliacs after the injection of horse serum, and bleeding could be stopped in the same manner after operation in hæmophiliacs who had not previously had injections of serum. Nolff in 1909 showed that bleeding in hæmophiliacs and in hæmoglobinurics could be stopped by subcutaneous injections of peptone. Widal found that similar results could be obtained in some cases of purpura; that injections of serum and peptone stopped hæmorrhage at once, and if repeated might cure these conditions.

In a number of the cases reported above subcutaneous injections or oral administration of normal horse serum or of antistreptococcal serum were given, and in the majority quickly checked the hæmorrhage. Repeated injections greatly diminished the severity of the attacks and rendered recurrences less frequent.

Yet in some cases, despite repeated injections, the attacks continued to recur, although in a less severe form and at longer intervals.

Widal announced later that the action of the serum or peptone was probably non-specific and acted by producing a colloido-clasic crisis; that any foreign protein introduced into the circulation might produce a favourable result, even the injection into a muscle or under the skin of the patient's own blood, which apparently acts as a foreign protein (auto-sero-therapy). However these injections may act, there can be little doubt that they should be the second line of attack in dealing with purpura. Favourable results have been reported in purpura after the subcutaneous or intramuscular injection of horse serum (Stern, &c.), antistreptococcal serum, peptone, sterilised milk (Gram), and even the patient's own blood (Widal, Emsheimer, Howard). The results are not, however, uniformly successful. Resort may then be had to intravenous injections of whole human blood from a suitable donor. Should such treatments prove ineffective, then splenectomy should be considered, as brilliant results have been reported in a number of cases. Splenectomy has so far been reserved for cases of true thrombocytopenia and should only be employed in severe recurrent cases, not in simple or fulminant cases. Giffin's recent work suggests that splenectomy may sometimes be advisable when there is no thrombocytopenia.

Other Remedies.

Some writers have reported good results from subcutaneous injections of adrenalin in repeated doses. Others state that small doses of turpentine may do good. Morris reported a case in China in 1916 cured by emetine hydrochloride; another successful case was reported by Plantier, of Algiers. Blum and Szabo advise large doses of alkalis in cases of bladder purpura to render the urine alkaline. They state that urine contains pepsin which in acid urine may cause digestion of the hæmorrhagic areas and the formation of "peptic" ulcers. The alkali is said to render the pepsin inactive. Oppenheim states that he cured a case by radiation with a quartz lamp. Suggestion has been employed in the cure of hysterical cases (Schindler).

Illustrative Cases.

Purpura Simplex; Purpura of the Bladder.

Case 1.—A girl, aged 12, admitted to the London Hospital on Nov. 30th, 1910, stated that on the evening of Nov. 28th she felt a sudden desire to pass water, and during the act experienced a sharp stabbing pain, starting in the left iliac region and spreading into the vulva. Between 8 P.M. and 9.30 P.M. she passed water four times, each time noticing a similar pain, which lasted only as long as water was passing and ceased at once at the end of the act. At 9.30 P.M. she passed water again, and this time inspected it. It was full of blood. An aching pain came on in the left iliac region when she went to bed, and lasted all night and the whole of the next day. Urine was passed once in the night and five times during the next day until the time of admission into the hospital at 5 P.M. on Nov. 30th.

Previous Health and Habits.—Diphtheria five years ago, otherwise no serious illness. No hæmophilia, no scurvy. The patient lives in Poplar amongst poor and unhealthy surroundings. She has had a sore-throat for some days before the onset of the hæmaturia, and has felt "out of sorts."

Examination.—The patient looks ill and is pale and anæmic. The temperature is normal, pulse- and respiration-rate are normal, the tongue clean and moist, the heart, lungs, and alimentary system normal. There is follicular tonsillitis on the left side, and some slight enlargement of the glands on the left side of the neck, which are tender to the touch. The skin shows no petechiæ, and the gums are healthy. There is deep tenderness over the bladder region, especially on the left side. The urine is full of blood-clots, and contains bright red blood diffused throughout.

The patient was at once taken into hospital and put to bed. By the next morning the bleeding had ceased and the pain had disappeared.

Dec. 1st, 1910: X ray examination of bladder and kidney areas shows an absence of stone shadows. The urine is clear to the naked eye, 38 oz. in 24 hours, the reaction acid, specific gravity = 1021, no albumin, urea 2·5 per cent. Hæmorenal index (electrical resistance of urine and serum) = 1·5 (normal 2).

Dec. 2nd, 1910. *Cystoscopy.*—The bladder was filled with 8 oz. of oxycyanide of mercury solution, 1 in 4000. Both ureters appeared healthy. The bladder wall for the greater part appeared pale and healthy, but scattered irregularly over fundus and trigone were patches of submucous hæmorrhages varying in size from a pin's head to a sixpence. The patches were of all shapes and sizes, some linear, some stellate. The greater number were scattered over the fundus. There was no ulceration and no sign of miliary tubercles. I came to the conclusion that I was either dealing with a purpuric condition of the bladder wall, or that I had caught a primary blood infection of tuberculosis at its very onset.

On Dec. 5th and again on Dec. 6th a 24-hour specimen of urine was examined for tubercle bacilli and for pus cells, but none was found. The Pirquet tuberculin reaction was positive.

The urine remained clear until Dec. 9th, when another attack of pain and bleeding came on exactly similar to the first one. This lasted two days and then cleared up completely. Throughout the whole time the patient was in hospital the temperature remained normal, and there were no signs of constitutional disturbance except that the patient felt below par.

Dec. 15th, 1910. *Cystoscopy.*—No pain, no increased frequency, no blood for four days. The picture had changed completely; the bladder was quite healthy again save for faint patches like fading bruises on the wall of the fundus and also about an inch above the middle of the bar of Mercier a small fading hæmorrhagic patch in which a small blood-vessel ran and was lost.

Dec. 16th, 1910. *Blood Examination.*—Coagulation time: five minutes. Red blood corpuscles 5,000,000. Hæmoglobin. 85 per cent. Colour-index, 0·8. White cells in normal proportions.

Course.—Calcium lactate grs. 10 three times a day was administered for a week, and the patient left the hospital on Dec. 19th restored to health, and has since had no return of the bleeding.

*Purpura Simplex; Purpura of the Kidney.**

Case 2.—A woman, aged 38, was admitted under my care at the London Hospital on Dec. 18th, 1916. She stated that three weeks previously she had developed active incontinence of urine and strangury. Six weeks later the strangury had suddenly ceased and she had begun to pass large quantities of blood in her urine. This had continued on and off ever since.

The patient appeared wasted and anæmic, but exhibited no physical signs. The urine contained a large quantity of blood and numerous coliform bacilli in pure culture, but no pus or casts. The blood showed no changes except those of secondary anæmia. Cystoscopy revealed blood pouring out of the right ureter in cascades. The urine from the left kidney was natural. X ray examination was negative.

On Dec. 19th, 1916, the right kidney was removed, as an early tumour was suspected. Examination of the kidney showed large purpuric spots and patches under the mucous membrane of the pelvis. No other changes could be discovered except slight degeneration of the cells of the collecting tubules.

Purpura Recurrens; Purpura of the Kidney and Bladder.

Case 3.—A single woman, aged 40, was examined in May, 1925. Her doctor stated that in June, 1924, she had suffered from strangury, pain in left kidney, and bacteriuria, and in November, 1924, had had a second attack. Since January, 1925, there had been increased frequency, pain on passing water, and constant aching pain in left kidney. For six weeks she had been confined to bed with slight fever, 99·5° F., and profuse sweating, daily growing more ill and anæmic. No pus or bacteria could ever be found in urine. Recently she had had profuse hæmaturia, which led her doctor to call for further advice.

On examination the left kidney was considerably enlarged and tender, and the urine was full of blood. X ray examination for stone was negative.

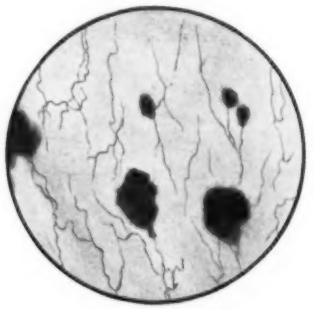
On May 27th, under ether anæsthesia, cystoscopy showed that the bladder mucous membrane was covered with large purpuric patches between which the mucous membrane was healthy. Blood was pouring in cascades from the left ureter. A specimen obtained by catheter from the right kidney was natural and of good functional value. As the bleeding seemed grave and increasing in severity day by day, it was decided to remove the left kidney.

On opening the kidney after its removal it was found to contain a large number of purpuric spots and patches beneath the pelvic mucous membrane. No other pathological changes could be found.

The patient was given three doses of 25 c.cm. of anti-streptococcal serum by the mouth at intervals of 48 hours.

* This case was described in my book, "Common Infections of the Kidney," 1920, p. 287.

MR. FRANK KIDD: PURPURA OF THE URINARY TRACT.



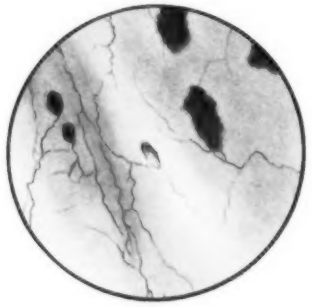


FIG. I.

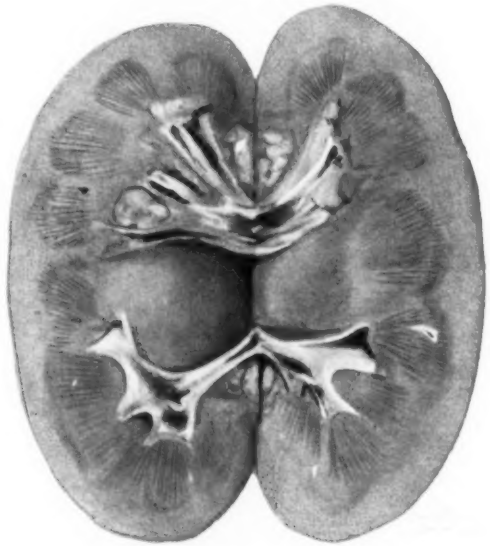


FIG. II.

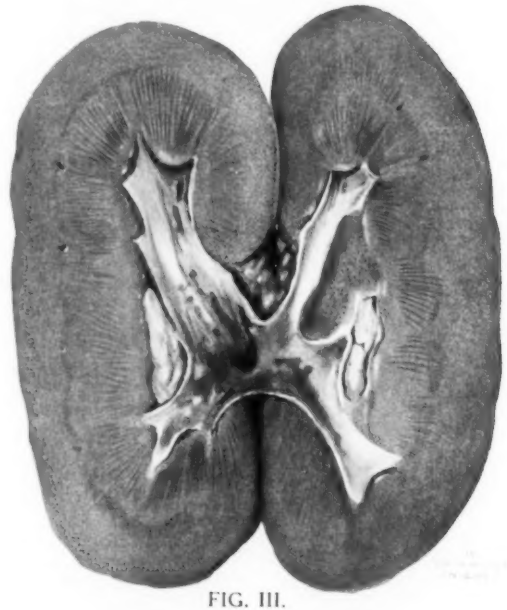


FIG. III.

Fig. I.—Cystoscopic appearance of purpura of the bladder showing petechiæ. The blood-vessels seen are veins, and the petechiæ are apparently formed by an exudation of blood-stained fluid or blood into the tissues around the capillaries just before they enter the finest veins. The edges of the petechiæ, though irregular in places, are sharply defined, and there is no inflammation around them. The larger patches sometimes appear very slightly raised, but the mucous membrane is usually intact. They vary from the size of a pin's head to areas ½ in. or more in diameter, and may be scattered over the bladder or confined to one small area. The rest of the mucous membrane is generally normal or at most shows very slight engorgement of the blood-vessels. Occasionally, however, there is mild diffuse submucous inflammation of the whole wall of the bladder, in the midst of which the petechiæ stand out plainly as blood red spots and patches.

Fig. II. (Case 4).—Kidney showing purpuric spots scattered throughout the pelvic mucous membrane, which appears pale and healthy between the petechiæ. Similar spots are evident between the collecting tubules in various places, but there is no generalised engorgement of the blood-vessels caused by inflammation.

Fig. III. (Case 5).—A large oozing submucous hæmorrhage is seen in the pelvis of the kidney.

Recovery was uneventful and the patient appeared to regain her usual state of health.

There was no further trouble until October, 1925; then for a week she had slight fever, and two attacks of slight hæmaturia and increased frequency. She was given three doses of antistreptococcal serum by the mouth. The bleeding at once stopped.

The teeth were X rayed and five or six dead stumps noted, but removal was refused. The urine and fæces were examined by Dr. Alexander Fleming, who found a hæmolytic streptococcus in the stools and a strain of *B. coli* which the blood agglutinated in high dilutions. Autogenous vaccines were started. *The first dose produced a severe attack of hæmaturia.*

Oct. 19th, 1925. *Cystoscopy.*—The bladder was full of clots, which had to be washed clear. Several large and many small purpuric patches could be seen on the base of bladder. One was abraded and bleeding. It was advised that she should go on with vaccines but in smaller doses, take calcium lactate from time to time, and have three doses of antistreptococcal serum by the mouth if she were to bleed.

Jan. 28th, 1926. She has had the vaccine once a week regularly and the bleeding has stopped completely. Before the vaccines were started coli agglutination of serum was 1/500; now it is 1/2500. No agglutination of streptococci. Opsonic index to streptococcus 1·34. Her general health has greatly improved, she has no fever, and is able to get about. If more than 0·5 c.cm. of vaccine is given she gets a reaction in the bladder, accompanied by hæmaturia. She was again advised to have the teeth removed.

August 4th, 1926. She has been wonderfully well. Six dead teeth have been extracted. There has been no hæmorrhage since then, till this week. She is putting on weight and looks quite fit again. She has had 1/5th c.cm. of vaccine regularly once a fortnight. Last week a drop of blood on napkins. Cystoscopy revealed four or five tiny purpuric spots just at entrance to urethra on the trigone.

Feb. 24th, 1927. She has been the picture of health and has had the vaccine regularly. During the last few days she has noticed a few drops of blood on her napkins and slight pain in the urethra. The bladder appeared healthy except for a large purpuric patch on the trigone, just at the entrance to the urethra. Three more doses of serum given.

March 17th, 1928. She writes to say she considers that she is completely cured, as she has had no more trouble and is in good health.

Note.—This was the only case out of eight with purpuric kidneys where pain was felt. The remaining seven kidney purpuras had painless hæmaturia.

Purpura Simplex; Purpura of the Kidney.

CASE 4.—A married woman, aged 40, first examined in December, 1923, had suffered for one week from profuse but painless hæmaturia. The urine contained blood, but no pus, and was sterile. Cystoscopy showed that blood was pouring in cascades out of the right ureter. The efflux from the left ureter was clear, and the left kidney was of good functional value. A pyelogram of the right kidney showed a double pelvis, but no evidence of tumour. As the bleeding appeared to be endangering life the right kidney was removed early in January, 1924. Examination revealed no pathological changes, except the presence of a number of purpuric spots scattered throughout the pelvic mucous membrane (Fig. II.).

Recovery was uneventful. The tonsils, which were enlarged, were removed. Since then there has been no further trouble of any kind, and in 1928 the patient is known to be in excellent health.

Purpura Fulminans; Purpura of the Kidney.

CASE 5.—A man, aged 59, was first examined on August 16th, 1921. His doctor stated that in May, 1918, patient had suffered from pain in the abdomen and diarrhœa. In May, 1921, he had a second attack accompanied by fever, and was in bed 14 days. On July 14th, 1921, he had pain in the pyloric end of stomach and fever, and had to go to bed, where he had been ever since. On August 3rd, 1921, he had an attack of retching and spat up blood, *which came from the teeth.* That day he started profuse hæmaturia, which persisted ever since, with no pain in bladder or kidneys, but with slight fever all the time. The urine is said to contain *B. coli* on culture. It contains a large quantity of blood, a few epithelial and blood casts, but no pus. The temperature is never above 100° F. Calcium lactate, acid. sod. phosphate, and later, alkalis and hamamelis, were given without beneficial result.

On examination the patient looked weak and anæmic from loss of blood. The kidneys were not enlarged. Cystoscopy showed the bladder wall not inflamed and blood pouring out of right ureter. The urine from the left kidney was clear and of good functional value. The gums were spongy and blue, and blood was weeping slowly from the margins round the teeth. There was a large subcutaneous hæmorrhage over the front of the right ankle. A provisional diagnosis of purpura was made, but as the pulse-rate varied between 70 and 90 per minute it was decided not to operate. The patient was flooded with alkalis and given hæmoplastin. The urine on cultivation yielded the *Streptococcus fæcalis* and a Gram-negative bacillus. Blood cultures were negative.

On the evening of August 17th the bleeding was more profuse and the patient was becoming blanched and restless, the pulse-rate having risen to 120 per minute. As it was obvious he was bleeding to death the right kidney was exposed. *The wall of the ureter was œdematous and glassy,* as is often seen from irritation by blood. The ureter and pelvis were distended with blood, but there were no clots. The right kidney was removed. On opening the kidney the cause of the hæmorrhage was apparent. The pelvis of the kidney was covered with purpuric spots, some the size of a pin's head, some of medium size, and there was one quite large submucous hæmorrhage in the middle of the pelvis. There were tiny white areas of fibrous tissue in the centre portions of the pyramids (see Fig. III.).

Dr. Elizabeth Lepper examined the kidney while fresh, mounted it, and furnished the following report:—

"The acute changes are almost limited to the mucous membrane covering the parietal wall of the pelvis; here the vessels are markedly dilated and full of polymorphonuclear leucocytes. There is a moderate round-cell infiltration of the submucous tissues and between the epithelial cells, and a very marked extravasation of red blood corpuscles, which accounts for the naked-eye appearances and presumably for the hæmaturia, though in consecutive sections I have not been able to demonstrate any actual loss of epithelium exposing a vessel. There is slight leucocytic infiltration at the tips of the pyramids. The changes in the cortex are chronic in character, some patches of fibrosis being present. There is, however, cloudy swelling of the epithelium of the tubules. No organisms have been found in any of the sections. Cultures made from the fresh specimen and from the urine grew the *Streptococcus fæcalis* and a bacillus of the proteus group."

Progress.—There was considerable shock for 24 hours, but next day the urine was clear of blood and the patient took a turn for the better. He was given hæmoplastin and alkalis.

August 21st, 1921. A bruise appeared on the left arm.

The wound healed on the ninth day, but continued to ooze a little blood-stained serum. Gastro-intestinal disturbances became more marked.

The patient went on fairly well until August 31st, 1921, and had no more hæmaturia. Then acute delirium, rigidity, and twitchings started suddenly. From this day on he got gradually worse. Though there was no return of any hæmorrhage, yet about the middle of September he gradually sank and died.

This case appears to represent a fulminating reaction to poisons absorbed from the teeth and alimentary canal.

SUMMARY OF THE TWENTY-FOUR CASES.

The condition affected females more often than males (19 to 5); the mild type usually attacked young children (6), and the more serious type those well advanced into middle age (18). Fourteen cases could be grouped as purpura simplex, 8 as purpura recurrens, and 2 as purpura fulminans. In 16 cases the purpura was confined to the bladder, in 3 cases it was present in both bladder and kidneys, in 5 cases it was confined to one of the kidneys.

Hæmaturia was present in all, was mild and transient in seven, was profuse and abundant, lasting for days at a time in ten cases, and was profuse, alarming, and dangerous to life in eight cases, so profuse that nephrectomy had to be carried out. In the two fulminating cases nephrectomy stopped the hæmaturia, but the patients died of exhaustion or of hæmorrhage elsewhere in the course of a few months. In the other six cases nephrectomy stopped the hæmaturia and the patients' lives were saved. Of these, three had no further trouble of any kind and are in good health, one had trouble for a time but is now cured, two still suffer at times from mild attacks of hæmaturia.

Pain was a marked feature in all the bladder cases, an intense strangury felt at the neck of the bladder, often so severe as to make the patient cry out, accompanied by distressing frequency of micturition. In all such cases petechiæ were seen in the bladder mucous membrane. Pain was not complained of in seven out of the eight cases diagnosed as renal. In this regard purpura of the kidney seems to differ from purpura of the bladder. In one renal case alone complaint was made of rather severe aching pain in the bleeding kidney, and in one other case the patient

noticed a sudden sharp stabbing pain in one kidney just as the hæmorrhage started, but it disappeared in a few moments and did not return.

Petechiæ and hæmorrhage occurred simultaneously in bladder and kidney in only three cases. In only two cases did it occur in the second kidney after the first had been removed for hæmorrhage. The bladder cases were far less severe than the kidney cases. In only one case was there evidence of a true nephritis, and in this case the condition was a large white kidney or "nephrosis."

The blood in the urine showed little tendency to clot, except in a child who had one attack of clot retention. Though there appears to be little if any delay in the clotting time in cases of purpura, yet there may be a diminution in the number of blood-platelets and a lack of firm retractile fibrin in the clotted blood, and the bleeding time is usually prolonged (Hayem, Duke, Frank). Exact observations of the blood were not made in a sufficient number of cases to make it possible to classify according to blood changes. No case of thrombocytopenia (Frank) was observed, but some may have been missed.

Fever was absent in 15 cases, and in the others was only very mild, the temperature seldom rising to more than 100° F., despite the grave condition of some of the patients. In this respect the cases differ markedly from ordinary cases of pyelitis and cystitis, and resemble and are sometimes mistaken for acute rheumatism if the joints are swollen. The cases described by Stevens and Peters appear to have been due to a peculiar type of poison related to the cause of trench nephritis.

Wasting was only noticeable in four cases and profound anæmia in eight. Many of the 15 ambulatory cases appeared remarkably well, despite the strangury and hæmaturia.

Eight patients were so desperately ill from loss of blood that nephrectomy was necessary. Only two other patients caused anxiety; in one recovery followed removal of an inflamed appendix and renal lavage quickly cured fever and pyelitis in the other.

The blood pressure was usually low, possibly due to loss of blood, a point which helps in the diagnosis from nephritis and congenital cystic kidney.

Two cases had intermittent painful swellings of the joints, seven had intermittent attacks of petechiæ or bruisings of the skin in various parts of the body, four had attacks of hæmorrhage from the bowel, and two had severe hæmorrhage from the gums. In these respects also they differed from the cases described by Stevens and Peters, wherein the lesions were confined to the bladder and kidneys.

Sources of Bacterial Infection.

As time went on it was recognised that the teeth and tonsils were most likely to be the cause of the trouble. In three children purpura of the bladder came on shortly after the enucleation of tonsils containing pure cultures of streptococci, but no pus could be detected in the urine. In another child the trouble came on the day after the extraction of a number of teeth infected with streptococci. In seven cases X ray examination of the teeth revealed septic stumps, the removal of which seemed to benefit the patients; in four streptococci were isolated in pure culture from the teeth and the urine. In eight cases the tonsils appeared diseased and were removed, and, in six of these, streptococci were isolated in pure culture from the tonsils and urine. There was usually a trace of albumin and an excess of epithelial cells in the centrifugalised urinary deposit. A few blood and epithelial casts might be present, but granular casts in large numbers were absent except in one case that had chronic nephritis. In nine cases the urine was sterile, and in the majority of cases no pus was detected in it. In this respect, again, the cases differ from ordinary cystitis and pyelitis. Bacilli of the colon group were isolated in eight cases, usually without pyuria. In nine cases it was possible to isolate cultures of a streptococcus from the urine in the absence of pus, in two associated with bacilli of the colon group. It seems probable that by special methods streptococci would be more often isolated from these cases than has been possible in this series. Streptococci seem liable to die out in culture, or are apt to be overgrown by the bacilli of the colon group, unless special methods are adopted to encourage their growth. More and more the impression was gained that a peculiar type of streptococcus was the most likely cause for the petechiæ, a streptococcus which might reside in the teeth, throat, or bowel, and which, by means of poison poured into the blood stream, might attack and injure the walls of the fine capillary blood-vessels so as to cause exudation of blood through them. In two cases the injection of an autogenous streptococcal vaccine in too high a dose at once produced an attack of purpura and hæmaturia, and in one case this happened on more than one occasion.

When pus was absent from the urine the bladder mucous membrane as a whole did not appear inflamed, but was dotted over with petechiæ of varying shapes and sizes. Where pyuria was present all the blood-vessels of the bladder mucous membrane might appear very slightly injected, but the petechiæ stood out boldly and clearly even from the slightly reddened mucous membrane, so that the diagnosis from hæmorrhagic cystitis was usually quite distinctive. In all cases the blood appears to exude from the petechiæ through the intact mucosa as if continuously squeezed out of a sponge. It is extraordinary how much blood may thus flow away in the urine by transudation without ulceration or breach of surface.

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THE EXPERIMENTAL BASIS OF RADIUM THERAPY IN CANCER.

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Two years after the discovery of radium in 1898 it was already being used for the treatment of superficial malignant growths and its employment has gradually extended to the treatment of nearly every variety of malignant disease. The rays from radium and other radio-active bodies are now universally looked upon as definite therapeutic agents for cancer. Since 1910 there has been no need for uncertainty about the measurement of radium, for in that year, international standards were adopted. At the present time, if careful and detailed descriptions of any particular radium technique are recorded, the same treatment, with identical dosage, can be followed by others in any part of the world. The same dose can be given again and again in exactly the same form. When we remember the great difficulty of exact measurement of dosage when using X ray bulbs of varying output, this great advantage of radium is evident. Generally, the dose is expressed by the quantity of radium used and the length of exposure; it is essential to add a description of the applicators or tubes, and to state exactly their position. Only when this is done can any comparison be made of the doses received at different points in the tissues.

Selective Action of Radium on the Tissues.

The effect of radium is not the same on all tissues, and the full effect of a dose of its rays is often delayed for several weeks. One of the first facts known from experiments was that when a malignant growth was given an effective dose of rays the cells gradually resolved and were not killed at once. There is no obvious sudden destruction of malignant cells, but rather a series of changes which, after stopping division and growth, ultimately causes the disappearance of the cells. Time is an essential factor in this series of events.

If a mouse or rat tumour is given a lethal dose of gamma rays and some of it is transplanted into another rat or mouse, as the case may be, tumour cells can be found alive and practically indistinguishable from the normal tumour cells for about 6–7 days; by this time some degenerate changes are recognisable.

The rays have essentially a selective action. They have much more destructive effect on lymphocytes and some glandular structures, such as the cells of the reproductive organs, than on many other normal cells and structures of the body; apparently, some of the least sensitive are muscle, cartilage, and nerve cells.

The question whether the rays have a greater destructive action on malignant tissues than on the normal tissues of the host can hardly be answered by a plain yes or no. No doubt, in time, we shall have accurate data which will make it possible to place the different normal tissues of the body and malignant tumours in the right order of vulnerability and, when this is possible on a quantitative basis, the question may be answered more certainly than it can now. But such a list of tissues, in the order of their vulnerability, is an exceedingly difficult thing to make; this is not due so much to the difficulties of observation and experiment as to the fact that the reactions of different tissues seem to depend on and vary with the time and intensity factors of the dose. In fact, it may be said that, granted the reality of selective action, advantage can only be taken of it when the best conditions of dosage have been discovered for each tissue. Experimentally, it is not difficult to find a physical dose which will have a lethal action upon animal malignant cells, but this physical dose can be arrived at in a very large number of ways by variations in time and quantity and yet still remain a lethal dose. Which of these ways is the best to adopt when a malignant growth has to be treated in situ is not yet definitely known.

The Optimal Dosage.

If a tube made of platinum, 0·5 mm. in thickness and 25 mm. long, containing 25 mg. radium element is put into a rapidly growing tumour in a rat for 48 hours, it can be shown that cells a little further than a centimetre away from the middle of the tube have had a lethal dose; for they will not grow when reinoculated into susceptible rats. Now this result can be equally well obtained by using 50 mg. of element for one day, or 5 mg. for ten days, the physical dose being the same in all three cases. The question is, which is the best kind of dose to use therapeutically. The reply can only be got by trial. Careful clinical investigations pursued to this end have brought us very much nearer to the time when optimal doses can be prescribed. It is important to know what are the lowest useful intensities; if 2 mg. of radium element per centimetre length of platinum tube are as useful as 20 mg., provided the time of exposure is adjusted accordingly, how much further down the scale of quantity is it safe to go? Experiment shows unmistakably that one cannot use very small intensities of radium and hope to get a lethal effect on malignant cells, for it appears that, just as with drugs or with electrical, mechanical, or chemical irritants, tissues normal or malignant can withstand these very small intensities more or less indefinitely, if a certain definite intensity of action is not exceeded. The tissues of the body are not altogether strange to ionising radiation, for it is credibly estimated that the penetrating cosmic radiation creates about a million ions per second per individual struck. The limiting intensity for any deterrent action obviously sets a limit to the useful range of radium tubes. Beyond the lethal range of a tube there is a range within which there is definite evidence that growth is hindered, and beyond this, a region in which the cells, though irradiated, are able to cope with the irradiation, even though it is prolonged more or less indefinitely.

This important fact sets a definite limit to the range of effect of any radium applicator or tube. This range is rarely as much as an inch through tissues. In treating cases of cancer with radium, unless we can visualise the range of effect with some accuracy, tracts of growth are apt to be left untreated; this is a vital point, and it emphasises the necessity of carefully planning the radiation, so that the whole of the involved region receives an effective dose. The radium should be distributed in as many foci as practicable, rather than concentrated in one spot; for too intense local irradiation, with the outlying parts not adequately treated, tends to cause unnecessary local damage.

Stimulation of Growth and Acquired Immunity.

The question is often raised whether weak irradiations can stimulate tumour growth. A good deal of experimental work has been done on this subject, and there has been some conflict of opinion upon it; this is probably due to the fact that, if cells do grow more quickly under weak doses of gamma rays, they certainly do not grow much more quickly, and there may well be differences of opinion over small differences in rates of growth. And yet it is, I believe, an experience sometimes met by clinicians that, after radium has been put into a septic malignant growth, the growth continues at an apparently greater rate; it seems safer to attribute this rather to the sepsis and necrosis than to a direct action of weak doses upon the proliferating power of the cell. There is, of course, the disquieting possibility that quiescent cells may be brought into activity by weak doses of gamma rays, but at present we have no definite experimental evidence on the point.

Some very early experimental studies showed that some varieties of cells appeared to be more affected by a dose of rays if they were actually undergoing division at the time than if they were in the resting stage. Normally, of course, only a small percentage of the cells in a tumour is in a state of division at any particular moment, but there is a distinct chance

that by increasing the time of exposure a bigger number of dividing cells can be irradiated. Exposures lasting a week or more are now often used, and in some cases it is maintained that better results are got in this way, but it would be risky to conclude that this was due to the irradiation of a bigger percentage of dividing cells, for it may just as likely be due to the fact that growing cells are more affected by long-continued weak intensities than by short, strong ones.

It has been proved, clinically and experimentally, that malignant growths given repeated, sub-lethal doses of gamma rays often develop an increased resistance to the action of the rays. In fact, tumour cells, after repeated irradiation, have been found to withstand as much as 2¼ times the normal lethal dose. This means that any form of radiation treatment should be planned so that the whole dose of radiation is given within a reasonable time and not repeated indefinitely. The fact that normal tissues are profoundly affected by gamma rays brings with it the practical certainty that the effect which a dose of these rays has on a malignant growth in the body is to some extent dependent on what the rays do to the normal structures around. In fact, we have experimental evidence that malignant cells do not grow so readily into regions of the body which have been irradiated. Naturally this effect is dependent upon the dose given, and much more work is needed before definite data can be given.

Malignant growths adequately irradiated may disappear locally, but there is very little evidence that in so doing the tumour cells which are absorbed have any deterrent action upon metastases. And yet there is the experimental fact that, when mice or rats which are ordinarily susceptible to tumour implantations have been inoculated with tumour which has had a lethal dose of radiation, a subsequent implantation of the normal tumour does not grow, and such inoculations can be made repeatedly on the same animal with a negative result. A closer parallel to the human case is, however, provided by spontaneous tumours in these animals, and up to the present it has not been shown possible to influence the formation of metastases in mice or rats by the irradiation of their primary spontaneous tumours. Very little work has been done on these lines owing to the difficulty of obtaining satisfactory conditions. Some evidence, however, exists to show that under certain conditions substances may be extracted from an irradiated tumour which actually stimulate tumour growth, and in this rather disturbing possibility some of the bad results of radium therapy may find an explanation.

Mode of Action.

As radium is used so much in the treatment of cancer, it is natural to want to know if an answer can be given to the question, How does it act? The outstanding fact of selective action does not in itself give any immediate clue to the answer to this question, just as the specific action of a drug on some particular organ of the body may still leave us ignorant of the way in which it acts. The most striking physical effect of gamma rays is that, when they pass through any medium, whether it be air or water, or the tissues of the body, they liberate negative electricity throughout the medium—i.e., they ionise it.

In certain cases it is very easy to measure this liberation of electricity and, in fact, the measurement of ionisation currents in air is the basis for all the standard physical measurements of gamma ray activity. In the tissues of the body it would be difficult to make such measurements with any accuracy because, normally, the electrolytes present give far bigger currents than those which would be produced by therapeutic doses of gamma rays. Yet this action is in all probability the one which, when intensity is great enough, at any rate starts processes which lead eventually to the damage of cells. One of the first steps in any attempt to explain how the rays cause these reactions in the tissues seems to consist in finding out how much local differences in ionisation can upset cell equilibrium.

In this connexion there appear to be two very significant facts; one is that under normal conditions the pH of the tissues is a very constant quantity, the other is that the ionisation produced by gamma rays in going through a medium is not a perfectly uniform process, for at any instant some regions are being ionised and others not. It has been estimated that when a beam of gamma rays goes through the air it only ionises about one molecule in a million of those through which it passes, and probably the same sort of thing occurs in the tissues. A locally intense ionisation is a process to which the tissues are ordinarily quite unaccustomed, and consequently they may find considerable difficulty in accommodating themselves to it.

VARICOSE ULCERS:

A COMPARISON OF TREATMENT BY ULTRA-VIOLET LIGHT AND UNNA'S PASTE DRESSINGS.*

BY DORA C. COLEBROOK, M.D. LOND.

THE object of this inquiry was to observe the effect of irradiation by mercury-vapour arcs on the condition and course of healing of varicose ulcers. The subject appears to be a suitable one because (*a*) progress in the condition is measurable by simple means; (*b*) it is commonly reported that irradiation in this condition is associated with certain definite effects: (1) a direct or indirect bactericidal effect; (2) an effect on the vessels of the ulcer or on the circulation of the whole leg; and (3) a stimulating effect on epithelial growth. It is claimed that the changes resulting from the action of the light in these three respects on the character of the ulcer and its discharges are readily appreciated by the naked eye.

The number of ulcers was 84 (68 patients); 37 were treated with light and 47 with Unna's paste. Eleven ulcers are omitted from the tables (6 light and 5 Unna cases, all of which healed rapidly) because they were so small or so recently under treatment that they gave no clear evidence of the extent to which the special treatment had contributed to the result. Three Unna cases (5A2, 25A1, 61A), all of which did badly, are also omitted from Table A because, owing to various difficulties, they were dressed without regard for the three principles suggested in this paper as essential. Of these three cases, two (5A, 25A) have recently made striking progress with a new trial of the paste dressing; one (61A) has not reappeared.

The Wassermann test was made in every case where the appearance was at all suggestive of a syphilitic infection. One case only (58A) giving a positive reaction was included in the series because it had already withstood antisyphilitic treatment, and appeared to contain a varicose element. Apart from this case, all the ulcers gave the history and showed the appearance and distribution associated with varicose ulcers.

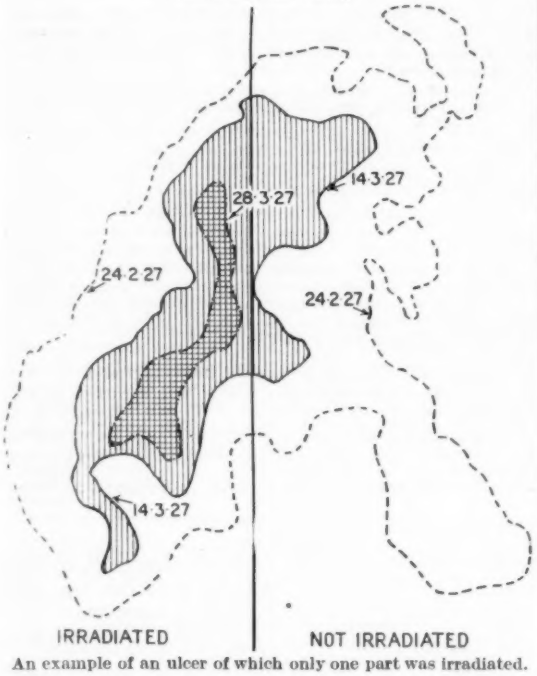
Evidence of Progress.

The attempt was made throughout to depend on objective rather than subjective evidence, and although notes were made of the observed state of the healing edge, of the base of the ulcer, and of the discharge, as well as of any striking alteration in the patient's symptoms, chief reliance was always placed on the actual surface measurement of the ulcer, and on the subsequent behaviour of the scar. Further, in the light cases no support other than that which the patient was in the habit of wearing, and in the Unna cases no antiseptic or application other than a simple zinc preparation was used. Where,

* This paper forms part of a report to the Medical Research Council. A table giving full details of the cases and their treatment will be supplied by the author to anyone who is interested. The case-numbers (in brackets) in the text refer to this table. (Table C.)

for any reason, an exception to this rule was made, a note to that effect is found in the tables. At intervals of 14 to 21 days the edge of the ulcer was traced on transparent cellophane tissue with a fine brush and the line subsequently pricked out on to

FIG. 1 (Case 15 A).



An example of an ulcer of which only one part was irradiated.

paper for a permanent record. The series of superimposed tracings in different coloured inks gave a very clear picture of progress so far as size was concerned. (See Figs. 1 and 2.)

Methods Used.

A. *Light Cases.*—The burners used were: (1) Two air-cooled Hanovias of vacuum type for A.C.; (2) one air-cooled K.B.B. of atmospheric type for D.C.; (3) one water-cooled Hanovia (Kromayer) for D.C.; (4) one water-cooled K.B.B. for D.C.

Dosage.—Irradiation was in every case local, but the whole of the leg up to the knee was exposed except in those cases in which a very strong dose was given. It is not suggested that a general systemic effect could be excluded. For the sake of brevity, and because figures relating to time of exposure and distance of patient from lamp are only useful where there is a standard output from the lamp, the doses with the air-cooled lamps are given in terms of a roughly estimated erythema, produced on similar areas of the skin of an individual of about average sensibility. It was found by this test that the air-cooled burners gave an erythema lasting for at least two to three days, at a distance of 2 feet, in four to seven minutes according to the age of the burner, while the water-cooled lamps applied to the skin gave a marked reaction with multiple small blisters in 40 to 50 seconds. Since neither the ulcerated surface nor the highly pigmented region surrounding the ulcer showed any erythema, the term is merely used as a comparative one, but where an actual definite reaction was seen on the healthy skin beyond the pigmented area, the fact is indicated in Table C. The doses given with the water-cooled lamps are expressed in minutes. The mild doses were given with the air-cooled lamps at 2 feet, the stronger doses with the air-cooled lamps at 1 foot or with the water-cooled lamps in contact. Where a strong dose was given to the ulcer the skin immediately surrounding it was protected.

Treatment was usually given twice or thrice weekly, but where a strong dose was given a longer interval was sometimes left.

All the bed patients, many of the ambulant patients, and all those exposed to the water-cooled lamp were treated by the writer personally; a certain number of the ambulant cases were treated by the nurse-in-charge under direction. It was the rule for all except the more chronic cases to be seen by the writer at least once a week.

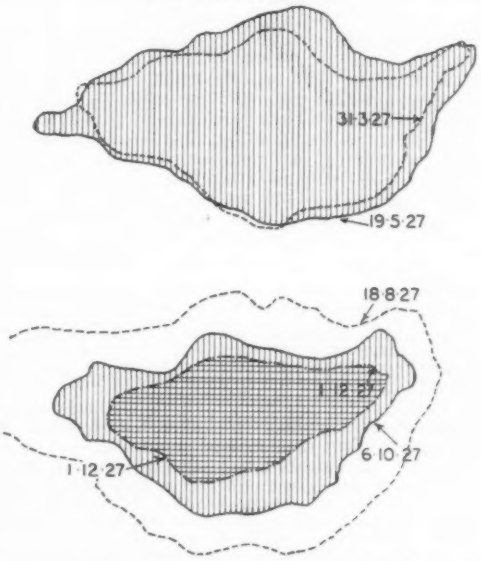
Dressings.—Normal saline and liquid paraffin were used as dressings on account of their ability to transmit the shorter rays. A spectroscopic test of the paraffin showed that wave-lengths down to 2400 A.U. passed through a layer 1 mm. or less thick with practically no absorption. For bed cases no other dressings were used, but when ambulant patients were intolerant of them, they were replaced by simple ointments which were wiped off before treatment. Although it was obviously impossible to cleanse the surface completely without damaging the granulations, no retardation was noted with the change over to this type of dressing.

B. *Unna Cases.*—The composition of the paste used was: zinc oxide 6, gelatin 4, glycerine 12, and water 16 parts by weight. Two and a half inch bandages of thin white muslin without "dressing" were used. They were soaked in water and wrung out as dry as possible before application. The paste was melted on a water-bath and used as hot as could be tolerated quite comfortably.

Three conditions were thought to be essential: (*a*) that the half foot, the heel, and the whole leg as far as the knee should be evenly covered; (*b*) that the bandage should be pasted on without pressure in any direction; and (*c*) that during change of dressings the leg should be kept in the horizontal position.

The actual method of bandaging varied according to the case; where the leg was slim, the foot and ankle and the lower quarter of the leg were completed in the first stage, the rest in the second. Where the leg was very shapely or showed prominent veins, strips were applied, each starting round the foot or ankle and sweeping up in a one- or two-turn spiral to the knee; thus successive areas were covered and an upward pull exerted. Each layer of bandage was

FIG. 2 (Case 26 A).



The upper diagram shows the change in outline of a varicose ulcer (Case 26A) between March 31st and May 5th under treatment by ultra-violet light. The lower shows the improvement after readmission on August 18th when treatment with Unna's paste was begun.

covered with a layer of paste. In the great majority of cases the bandage and paste were applied direct to the ulcer; in a few cases the ulcer was first covered with a simple zinc ointment and some layers of gauze. In many cases a rubber sponge [1] was inserted between the first layers of the bandage. The sponges were 1¼ inches thick and cut to a size a little larger than the ulcer.

The dressings were usually changed twice weekly for at least the first two or three times; if pain was relieved and the aspect of the ulcer was reassuring, the interval was gradually prolonged to 7, 14, or 21 days. Except in the first case of the series (2A), windows for dressings were not left. Experience of three cases (26A, 27A, 65A), in which the

[1] See G. Nobl: Wien. Med. Woch., 1925, lxxv., 1981.

skin surrounding the ulcer became sodden and showed denuded areas, led to the exercise of great caution when any redness occurred under the bandage.[2] On the other hand, it was frequently found that even where the ulcer was large the dressing could safely be left on for seven days, and, although it was very foul when taken off, the aspect of the ulcer was most satisfactory.

Cases.	*Duration of Treatment (in weeks).*			*Size of Ulcers Treated.*			
				Maximum.		Minimum.	
	Max.	Min.	Aver.	Area.	Pm.	Area.	Pm.
				sq. cm.	cm.	sq. cm.	cm.
Light ..	39	·4	13·8	61·3	37	1	3
Unna ..	15	2	7·3	107	43·5	1	3

Pm. = perimeter.

Groups of Cases Treated, with Results.

The cases may be divided into five groups according to the treatment employed. In *Group A* the ulcers were treated with ultra-violet light, in *Group B* with Unna's paste. *Group C* consists of cases which failed to respond to light and were dressed with Unna's paste. The patients in *Group D* had two or more ulcers and in each case one of these was irradiated. Lastly *Group E* comprises ten cases in which the ulcers were so large that a part of them could be irradiated while the rest was otherwise treated.

Group A.—31 ulcers (15 bed, 16 ambulant cases) were treated with ultra-violet light. Further reference to 14 of these is made in Group C. (For results, see Table A.)

TABLE A.—*Summary of Results.*

Cases.	Healed.		Improved but not healed.		Unchanged.		Worse.		Total.	
	Light.	Unna.	Light.	Unna.	Light.	Unna.	Light.	Unna.	Light.	Unna.
Ambulant.	0	23 (76·6)	5 (31·2)	6 (20)	6 (37·5)	0	5 (31·2)	1 (3·3)	16	30
Bed ..	2 (13·3)	4 (44·4)	10 (66·6)	4 (44·4)	2 (13·3)	0	1 (6·6)	1 (11·1)	15	9
Total..	2 (6·4)	27 (69·2)	15* (48·4)	10† (25·6)	8 (25·8)	0	6 (19·3)	2 (5·1)	31	39

Figures in parentheses are percentages.
* 8 made no progress during last weeks of treatment.
4 made so little progress that other treatment was subsequently used.
3 discharged themselves when the ulcer was not quite healed.
† 10 are all making good progress, treatment continuing.

(1) Bed cases: 2 (18B Pt, 12B Pt) healed. In both cases a non-irradiated portion of the ulcer healed at the same rate. (2) Ambulant cases: None healed.

Group B.—39 ulcers (9 bed, 30 ambulant cases) were treated with Unna's paste. Further reference to 14 of these is made in Group C. Of the remainder, 7 had previously attended the hospital for varying periods but had made no progress. (For results, see Table A.)
(1) Bed cases: 4 healed. (2) Ambulant cases: 23 (including the 7 mentioned above) healed.

In the attempt to judge the part played by the light in this condition, in which spontaneous variations occur and on which many influences are at work, comparison was made, not only with the cases treated with Unna's paste as a whole (see Groups A and B), but also with cases treated first with light and later with Unna's paste (see Group C), and with certain untreated ulcers or parts of ulcers in the same patients as the treated areas and dressed with the same dressings (see Groups D and E).

Group C.—14 ulcers which had failed to respond to light were dressed with Unna's paste. (See Table B.) Of the 9 ambulant cases 6 healed, and the remaining 3, which are still under treatment, have shown marked improvement.

[2] The use of "blue paint" (crystal violet and brilliant green, ½ per cent. of each in rectified spirit and water) to the surrounding areas, as suggested by Dr. H. Haldin-Davis, is now being tried.

Group D.—4 patients had more than one ulcer. All had the same dressings; one ulcer in each case was irradiated.
(1) Bed case: (12A and 12C). Same rate of healing in both.
(2) Ambulant cases:
1 (33 A and B). No improvement in either.
1 (62 A and B). No change in irradiated: deterioration in non-irradiated ulcer.
1 (54 A, B, and C). Deterioration in all three areas.

Group E.—10 patients had ulcers (11) sufficiently large for a part to be screened during irradiation; in 4 of these a small area only was exposed to the water-cooled lamp.
(1) Bed cases:
2 (18A, 52A). More rapid healing in screened parts.
5 (8A, 12B, 15A, 18B, 32A). Same rate of healing in both parts.
(2) Ambulant cases:
2 (10A, 25A). Same rate of healing in both.
1 (19A). No progress in either.
1 (34A). Deterioration in both.

Inferences to be Drawn from the Above Groups.—(1) Ambulant cases: The superiority of Unna's method is very clearly seen. (2) Bed cases: The difference is much less marked. So far as it goes, the evidence suggests that the rest rather than the treatment is the important factor.
Owing to the small numbers no conclusions can be drawn with certainty from Groups D and E, but there is no evidence that the light has any beneficial effect.

TABLE B.—*Comparison of 14 Cases Treated First with Light and Later with Unna's Paste.*

Light Treatment.			Unna's Paste Treatment.‡		
No.	Progress.	Duration (weeks).	No.	Progress.	Duration (weeks).
Bed Cases.					
1 (26A)	Did badly.	6	1 (26A)*	Improved greatly. N.U.†	6
4 (27A)	Improved slowly.	39	1 (27A)	Improved slowly.	3
(31A)		13	3 (31A)		13
(32A)		8	(32A)		8
(52A)		6	(52A)‡		6
Ambulant Cases.					
4 (2A)	Did badly.	6	1 (2A) *	Healed.	5
(25A)		7	3 (25A)*	Improved considerably.	7
(34A)		13	(34A)*		13
(54A)		4	(54A)‡		4
5 (14A)	Made no progress.	17	5 (14A)	Healed.	8
(22A)		8	(22A)		2
(23A)		15	(23A)		11
(33A)		8	(33A)		8
(62A)		6	(62A)		6

* Treatment continuing.
† Developed new ulcer, treatment abandoned.
‡ Has since healed as an ambulant case.

Effects of Varying Doses of Light.

1. Suberythema doses were given in the early stages of treatment to 30 ulcers, and in 10 nothing further was tried over a period of several months. These cases on the whole ran a more favourable course than those having stronger doses. The significance of this observation is discussed later.

2. Erythema doses with the air-cooled lamps were given to 20 ulcers; of these 8 showed a good reaction on the whole leg. In many cases the ulcer only was exposed. While there was temporary improvement in a few cases, in others no effect or a deterioration was seen.

3. Erythema doses with the water-cooled lamps were given, to the ulcer only, in 6 cases. In these cases, exposures of 4, 5, or 7 minutes were reached before the method was abandoned. In none of these, apart from a dryness of the surface immediately after exposure, was there any apparent change in the condition of the ulcer. Four (8A, 10A, 17A, 34A) showed no alteration in size; two (23A, 25A) made a little progress, but both ulcers had previously improved at about the same rate when under suberythema doses with the air-cooled lamps. Four (8A, 10A, 25A, 34A) had the lamp applied to one part only; these parts showed no distinctive changes.

Number of Doses Given.

—	Max.	Min.	Aver.
Suberythema	40	4	15·5
Erythema (air-cooled lamp) ..	30	2	10·0
Erythema (water-cooled lamp)	23	5	11·5

Five patients only had less than 12 doses, three because the ulcer had not improved or was worse, two because the ulcer was nearly healed and the patients wished for their discharge.

Conclusions as to Dosage.

1. Progress was chiefly associated with the periods of mild irradiation. For this reason a very extended trial was given to this method. It must be borne in mind, however, that the circumstances in which the mild doses were used—that is, in the early stages of treatment—were exactly those in which other beneficial influences are especially operative—viz., in the bed cases the influence of the rest itself—an influence most apparent in the earlier weeks of recumbency, and in all cases the influence of a change of treatment, of extra cleanliness, and of careful dressings. Moreover, since in this group the average period of irradiation was longer, the chances of spontaneous recovery were greater. The suggestion that the rôle played by the light itself was an unimportant one is supported by the following observations: (*a*) where comparison was made in this series, the behaviour of irradiated and non-irradiated areas or ulcers was similar; (*b*) in many cases progress was not maintained, relapses occurred, and a continuation or a further course of similar treatment to the relapsed area was ineffective. 2. Where a case was making little or no progress stronger doses did not appear to accelerate healing. 3. Where fluctuations in condition were noted they did not appear to be related to dosage. 4. Periods of rest from treatment gave no indication of value.

Harmful Effects.

Although a certain percentage of cases did badly, there was nothing in their behaviour to suggest that the irradiation actually did harm.

Progress of Unna Cases.

Whereas, in the light cases it was difficult to see any relation between the routine and the result, experience with Unna's paste strongly suggests that failure may be associated with faulty technique. Reference to this point has already been made in connexion with excluded cases. No attempt has been made to determine to what extent the rubber sponges have contributed to the results; it is certain, however, that in a number of cases a most definite advance in healing and in comfort followed their use.

Behaviour of the Scar.

The two (bed cases) patients treated by light, parts of whose ulcers healed, have not been traced.

It was not anticipated that the scar resulting from the use of Unna's dressing would provide any exception to the usual history of relapse; patients were, therefore, urged to attend for monthly applications after healing had taken place. Most of the Unna cases were treated in the late summer of 1927, so that they have been under observation since healing took place for three to four months only. Of 15 patients who have reported recently, 12 have been wearing the paste for at least three months; none has relapsed, and all are absolutely comfortable. Of the three who left off the dressing, two had relapsed within four months.

Other Evidence of Progress.

Although chief reliance was placed on objective evidence of progress—namely, on measurement—it is fully recognised that a statement of size alone gives a very incomplete picture of the condition of an ulcer. While no alteration in size may be demonstrable over a certain period, the most striking and incontrovertible changes may be apparent in its depth, the steepness of its edges, and the character of the granulations. When these changes are favourable, it is reasonable to assume that they will be followed eventually by a satisfactory rate of healing. Generally speaking, even where there was a decrease in size, irradiation was not associated with a healthy aspect of the edges and base. In the Unna cases, on the other hand, particularly when a rubber sponge was used, it was usual for the surface of the ulcer very quickly to undergo a striking change, to show flat edges and fresh red granulations. When allowance is made for the spontaneous variations in the condition of the ulcer which occur from time to time, it cannot be said that any appreciable relief of subjective symptoms was obtained from light treatment. The Unna dressing was associated with rapid disappearance of general discomfort and the feeling of heaviness and "inflammation" in the leg; the pain in the ulcer was in many, but not in all cases, as easily relieved. The occurrence or recurrence of pain was found to be a useful indication that all was not well; very notable comfort after the first week or two usually coincided with actual healing.

General Conclusions.

1. *Rate of healing.*—The effect of the light was markedly inferior to that of the Unna's paste, the most striking difference showing in the ambulant patients, many of whose ulcers had previously healed only with rest in bed. (For figures, see Table B.)

2. Favourable *changes in general character*, which were slight or absent in the irradiated ulcers, occurred at an early stage in those dressed with Unna's paste.

3. *Relief of symptoms* was not obtained during light treatment, but was a marked feature of the Unna cases.

4. The use of rubber sponge compression on the ulcer appeared to be definitely advantageous.

It is not claimed for this inquiry that it was an exhaustive examination of all possible methods of irradiating varicose ulcers. It was, however, hoped that a sufficiently extended trial, in carefully selected cases, of dosage ranging from very mild to very strong might serve to give some definite indication of effect and of practical utility.

The incidence of the disease falls on workers, and especially on men and women whose occupation involves much standing; the method of choice, therefore, must be that which involves the minimum attendance for treatment. It was the urgency of this aspect of the question which first led to a consideration of the claims made for the method of Unna as an alternative, and not merely as an adjuvant to any other, and hence as a control to treatment by ultra-violet light.

I acknowledge with much gratitude the facilities given me for this study—with the kind consent of the Boards concerned—by Dr. Haldin-Davis and Dr. C. B. Heald, of the Royal Free Hospital; by Dr. Remington Hobbs, of St. Mary Abbot's Hospital; and by Dr. Arthur Reade, of New End Hospital; as well as the coöperation of sisters and nurses in these institutions, and particularly of Nurse Cresswell, of the Royal Free Hospital, who has so ably and enthusiastically assisted me in the work. I am much indebted to Dr. Edgar Schuster and to Miss E. M. Newbold, M.Sc., for help with tracings and figures respectively, and to Dr. R. B. Bourdillon for criticisms and suggestions.

MANCHESTER AND DISTRICT RADIUM INSTITUTE.—The annual report for 1927 states that this institute was the first fully equipped hospital in the United Kingdom for treatment by radio-active substances. There are 14 beds for in-patients, two of them being set aside for paying patients. The existing stock of radium is quite insufficient, and the period of waiting for treatment sometimes removes all prospects of relief. The in-patients treated during the year numbered 566, and the total attendance of out-patients was 6976.

A HOSPITAL AT £600 PER BED.—The Park Poor-law Hospital at Davyhulme, which is being built by the Barton-upon-Irwell Board of Guardians, is approaching completion. It will cost over £300,000, and its 500 beds will thus have been provided at the rate of about £600 each, which the guardians believe to be the lowest rate of any hospital in England. The buildings include all the necessary departments.

A NOTE ON THE USE OF

BENZYL CINNAMIC ESTER IN TUBERCULOSIS.

THE METHOD OF JACOBSON.

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IN his thesis in 1919, Jacobson [1] established an analogy between tuberculosis and the diseases due to pathogenic fungi. In order to attack this infection he considered the possibility of using balsam of Peru, on account of its antiparasitic properties. Benzyl cinnamic ester is one of the constituents of cinnamein, the active principle of balsam of Peru. We know as a result of Jacobson's researches on the biological properties of the two radicles, the cinnamic and the benzyl, which together constitute benzyl cinnamic ester, that the cinnamic radicle hinders the growth in culture of the bacillus of Koch, diminishes the febrile reaction which occurs in a guinea-pig after the injection of tuberculin, and also produces an appreciable leucocytosis after its administration subcutaneously. The cinnamic radicle, in the form of sodium cinnamate (hétol) or of cinnamic acid which were studied by Landerer, has not these properties except that when injected intravenously a leucocytosis is produced. The benzyl radicle, studied by Jacobson [2 3 4] in the form of benzyl alcohol, has a powerful dissolving action on the tubercle bacilli in vitro. These bacilli, mixed with benzyl alcohol, and injected into guinea-pigs do not produce visceral tuberculosis or even cold abscesses; lethal doses of crude tuberculin mixed with this alcohol and injected into guinea-pigs do not cause death.

French Experience.

Clinically, benzyl cinnamic ester has given some encouraging results in the treatment of pulmonary tuberculosis; but in order to observe more closely the effect of this compound on the lesions of tuberculosis Jacobson first of all treated forms of tuberculosis which were external and visible and consequently more easily observed, particularly lupus.

The results which Jacobson [5] obtained in the treatment of tuberculosis of the skin at the Hospital St. Louis have been confirmed by Darier,[11] Jeanselme,[12] Mitchitch,[14] Froissard,[17] and by different observers at the three Congresses of Dermatology—Paris 1922, Strasbourg 1923, Brussels 1926, and particularly by Vigne and Fournier.[20] Benzyl cinnamic ester has been shown to be equally useful in the treatment of tuberculous glands. Jacobson's results [9] in this respect have been confirmed by Sebileau [16] and by Desplas.[19] Especially suggestive results have been obtained in the treatment of genito-urinary tuberculosis by Cathelin and Brulé,[15] and by Tissot and Chaignon.[18] The preparation is no less efficacious in the treatment of tuberculosis of the mucous membranes. Jacobson [6] has reported his results in buccal tuberculosis confirmed by Jeanselme; Dufourmentel and Sebileau [16] and Caboche [21] for laryngeal tuberculosis.

As a result of the use of benzyl cinnamic ester these reports have demonstrated improvements in the actual tuberculous lesions, but apart from these the improvement of the patients has been definite, and in some cases very considerable. These results were so encouraging that Jacobson then tried the treatment of pulmonary tuberculosis, and in a recent communication [10] has reported the results on ten cases. The importance of this communication is not only in the improvement of the symptoms but the evidence afforded of rapid modifications in the diseased lungs shown by X ray examination and which makes this report particularly interesting.

After having learnt of Jacobson's researches I have myself endeavoured to observe the effects of the product in tuberculosis and have studied the action of Jacobson's solution at first on cases of external tuberculosis which were more easily observed.

The results which I have obtained in a short time appear to be sufficiently suggestive to be worth reporting.

Technique.

The treatment consists of a course of 12 daily intramuscular injections, followed by a rest of 15 to 18 days, after which the course is repeated twice in this manner so that three such series of injections are given. The patient is then given one to two months rest before restarting treatment in the same manner.

The dose varies from 0·25 to 1·0 c.cm. of the solution, the former dose for pulmonary or bucco-laryngeal cases, the latter dose for cases of external tuberculosis uncomplicated by either former conditions. There is no reaction, general, local, or focal after administration of this product.

Three Typical Cases.

The following three cases are typical of the results obtained in all the cases so far treated.

CASE 1.—D. K., male, aged 23. Tuberculous glands in neck. General condition poor. Nov. 27th, 1927: In left anterior triangle of neck there is a mass firmly adherent to skin and deeper structures discharging freely from a sinus at the lower pole. Above it is a healed sinus. On the right is a large freely movable mass of glands in the anterior triangle. This mass has only been noticed two or three weeks; the other mass has been present for four months, having been incised previously and then closed. The wound broke down shortly afterwards. There is an evening temperature reaching 99·5° F.

Treatment with benzyl cinnamic ester commenced. After the first series of injections the mass on the left side had disappeared, and the sinus discharge was very much less. The mass on the right side had become larger and fluctuant—the pyrexia had increased and there was some mental disturbance. He then left my care for a time but returned Jan. 4th, 1928. Treatment was restarted. Early during the second course the right side started discharging pus, and the swelling subsided. The patient's general condition started to improve, he became afebrile, the discharge ceased on the left side, and shortly afterwards ceased on the right side. By the end of the third series of injections, Feb. 16th, he had gained 8 lb. in weight, the left side appeared firmly healed, and the right side had been dry for some days. There was no swelling on either side of the neck, and he was quite afebrile. His appetite had improved enormously, his mental condition was normal, and in general he felt much better.

Result: Very marked general and local improvement.

CASE 2.—E. D., male, aged 29. Tuberculosis of kidneys with cystitis. General condition poor. Patient pale and anæmic; he had been suffering for over two years, both kidneys were affected, tubercle bacilli had been found in the urine, there were occasional attacks of hæmaturia. He had been treated with tuberculin B.E. On the whole he seemed definitely to be losing ground.

Dec. 5th, 1927: Frequency now $\frac{D\ \frac{1}{2}\text{ hourly}}{N\ 1\frac{1}{2}\text{ to }2\text{ hourly}}$. He complains of severe pain over the bladder, particularly in the morning.

Treatment with benzyl cinnamic ester commenced. After the first series of injections the pain became definitely easier; he gained 2 lb. in weight, and his general condition improved as regards appetite and strength. The frequency remained unchanged. During the second course of injections he gained a further 2 lb. in weight, the pain practically disappeared, but an attack of hæmaturia occurred which caused rather a set-back. After the third course, he regained the weight he had lost, pain was completely absent, his general condition improved still further, and the frequency was now $\frac{D\ 1\text{ to }1\frac{1}{2}\text{ hourly}}{N\ 2\frac{1}{2}\text{ to }3\frac{1}{2}\text{ hourly}}$. Patient feels quite certain of his improvement. Total gain in weight 4 lb.

Result: Improvement.

CASE 3.—S. W., male, aged 40. Tuberculosis of lungs and larynx. Patient well nourished, but feels very weak and tired. History of cough for five months. Tubercle bacilli had been found in the sputum. He had been getting increasingly hoarse for six weeks, this symptom having appeared while he was in a sanatorium. He is dyspnœic. There is considerable discomfort on swallowing and some pricking pains in the throat. Physical signs: Dullness of the upper right lobe with almost tubular breathing at that apex. Hard crepitation at both apices. X rays show extensive long-standing tuberculosis of the right upper lobe

and the left apex is not quite clear. Laryngoscopy shows granulation tissue on both cords, with a large mass of granulation tissue in the interarytenoid space and œdema of the ventricular band.

Dec. 30th, 1927: Treatment with benzyl cinnamic ester commenced. Patient is practically aphonic, and his temperature reached 99·5° most evenings. By the sixth day of treatment marked improvement was noticeable in his voice. Patient felt very much better than he had for some time. By the end of the course the improvement in his voice was very marked, though there was still some hoarseness. There was no longer any pain in the throat, nor was there dyspnœa. The laryngeal appearance was hardly changed. By the end of the second course of injections the voice had become stronger, the discomfort on swallowing had completely disappeared, and laryngoscopy also revealed improvement. The interarytenoid swelling had almost entirely disappeared, the œdema diminished considerably, and the deposit on the cords was smaller. The patient increased 2 lb. in weight, and his general condition was improved. He felt stronger and his appetite was now quite good. Physical signs in chest unchanged.

Result: Improvement.

Apart from these, three other cases of glands in the neck were treated, two of these cases having discharging sinuses. All cases showed improvement, the sinus healing rapidly. Two cases of renal tuberculosis with cystitis and two cases of tuberculous epididymitis showed definite improvement in the general condition and relief of pain and diminution of toxæmia. Two cases of chronic pulmonary tuberculosis showed marked improvement in the general condition after a short period of treatment only. One case of tuberculous iritis and iridocyclitis received so much benefit that lens extraction became possible and was successfully performed. One case of lupus vulgaris showed rapid improvement during the first course of injections. One case of tuberculous perianal abscess showed marked improvement.

Remarks.

These are all the cases treated, and they are still under observation. In reporting these cases, none of which have been treated for more than three months, I realise that it is impossible to say anything as to the further prognosis of these patients, but nevertheless, in that short interval of time during which they have been under observation, improvement of some degree has been observed in *all* the cases. This result seems to me very suggestive as to the favourable influence of this treatment. The improvement has been particularly striking in some cases where the general condition was either poor or definitely getting worse before this treatment was started. In conclusion I can certainly confirm that the use of Jacobson's solution of benzyl cinnamic ester has given rise to no noticeable reaction, either general or local, and that it has in all cases been perfectly tolerated.

I have to thank my colleagues for allowing me to treat and report on their cases and for their help in many ways.

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Clinical and Laboratory Notes.

A NOTE ON BACTERIOPHAGE FROM CASES OF RICKETS.

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SINCE bacteriophage is known to be present in the intestinal tract and may play a mysterious but important part in the resistance of the individual to disease, I thought it worth while to test a few samples of fæces from cases of rickets for the presence or absence of bacteriophage. The test was accordingly done on 15 cases which were all under treatment, but in different stages according to X ray findings. The following technique was adopted:—

Fæces were incubated in peptone broth for 18 hours at 37° C., filtered through filter paper and then through a Chamberland filter. Each filtrate was then tested against four-hour cultures of typhoid, paratyphosus B, Shiga, Hiss, and Flexner. A standard loopful of culture was rubbed over an agar slant and 5 drops of filtrate run over the slant, which was then incubated for two hours at 22° C. and 18 hours at 37° C. To judge the strength of bacteriophage the following code was used:—

0	No action.
†	A few plaques.
††	Many plaques, but countable.
†††	Only isolated colonies of bacteria.
††††	An occasional colony.
†††††	Slant remains sterile.

It was found that a laboratory strain of typhoid was acted upon in several instances. As this is most unusual, a second more recently isolated strain was included in the tests and called "typhoid H." The table shows the results obtained, controls being sterile in all cases.

Bacteriophage Experiments.

No.	X ray.	Typhoid.	Hiss.	Shiga.	Flexner.	No.	X ray.	Typhoid.	Hiss.	Shiga.	Flexner.
1	Heal.	†	†††	†††	0	9	Cured.	0	0	0	0
2	Sev.	†††	††	††	0	10	,,	0	0	†††	††††
3	Imp.	†††	†	†	0	11	Imp.	†	†	†††	††††
4	Cured.	††	††	††	0	12	,,	††	††	†††	††
5	Sev.	0	†	††	††††	13	Cured.	0	0	0	0
6	,,	0	0	††	††††	14	Sev.	0	0	0	0
7	Cured.	††	††	††	†	15	Cured.	0	0	†	0
8	Imp.	††	††	††	0						

Typhoid H.—Expt. 12, †; in the other experiments, no action.
Para-B.—No action in any experiment.
Heal. = healing; sev. = severe; imp. = improved.

No important differences in the bacteriophage present were noticeable in these cases, although the disease was in different stages. Nor does the absence of bacteriophage active against the cultures tested appear to differentiate "cured" cases from a severe one. Activity against Hiss, Shiga, and Flexner is common in fæces from normal people, and was even found in a baby 12 days old.

The bacteriology of the fæces of 23 rachitic and 36 normal children was also investigated for predominance of fermentative or putrefactive organisms. The fæces of 11 out of 36 normal children showed putrefactive organisms. In rachitic children, 15 out of 23 showed putrefactive organisms in the fæces, which is a much higher percentage than in normal children. The ages of the children varied from 18 months to 4 years, and they were all on a mixed diet.

The work formed part of an investigation of various aspects of rickets which is being done during the tenure of the Virol Research Scholarship in Clinical Pathology in the Bacteriological Department School of Hygiene, University of Liverpool.

The writer has pleasure in acknowledging indebtedness to Dr. Dingwall Fordyce, physician to the Royal

Liverpool Children's Hospital, and to Colonel P. McDiarmid, superintendent of Alder Hey Hospital, for free access to cases under their charge.

A CASE OF TETANUS.

By S. M. Power, M.B., B.S. Lond.,
LATE HOUSE SURGEON, LONDON HOSPITAL.

An interesting case of tetanus, which may throw some light on the value of serum treatment, was recently admitted to the London Hospital under the care of Mr. E. C. Lindsay, with whose permission the following notes are published :—

The patient, a boy of 18, had 24 days previously punctured the sole of his foot with a rusty nail; the wound was quite small and was treated in the usual way. Seventeen days later he complained of pain and stiffness in the back, and for three days before admission there was trismus with generalised spasms. The true state of affairs was then recognised, but serum was not given for another two days, when an injection of 15,000 units was given intramuscularly. The patient was admitted to hospital the following day.

On admission he looked pale and was sweating profusely. There was typical risus sardonicus and marked rigidity of the abdominal muscles. The leg on the affected side was held somewhat stiffly extended. Passive movements in the joints were not difficult, with the exception of the ankle-joints, where dorsi-flexion was inhibited. The patient was given general anæsthesia and 20 c.cm. of cerebro-spinal fluid were drawn off; the pressure was considerably increased, but subsequent microscopic examination revealed no abnormality; 15,000 units of antitoxin, in a corresponding amount of serum warmed to blood heat, were immediately injected into the theca. As there was no pronounced respiratory embarrassment gr. ¼ of morphia was given, and a quiet night ensued.

Next day the condition was considerably worse. There was marked cyanosis, rigidity had increased, and generalised spasms began later, with flexion of the upper limbs and marked opisthotonos. Unconsciousness supervened and there was incontinence of urine. The patient was put in seclusion at midday. The spasms continued, numbering altogether about 50, but at about 7 P.M. consciousness gradually returned. Through the night spasms were very frequent and at times respiration completely ceased. There appeared to be increased sensibility to pain, and in the early morning it was deemed advisable to give morphia, which gave considerable ease; the movements ceased for four hours, during which the patient slept quietly. He was awakened by a very violent spasm but dropped off to sleep again. A fairly comfortable morning ensued, but spasms set in again in the afternoon, with considerable distress, the patient moaning loudly with each spasm. It was noticed, however, that he had regained power over movements of the jaw, was able to take fluids, and to answer questions. During the latter part of the day two doses of chloretone, grs. x. in glycerine dr. i., were given without much effect. That night a further injection of morphia gave considerable relief and a long sleep. After this definite spasms ceased.

During the following day he dozed, with occasional fits of restlessness accompanied by loud moaning. Consciousness was complete and there was no difficult in feeding. Now that the spasms had ceased, chloretone appeared to be effective in giving the patient the rest which he needed. 9000 units of antitetanic serum were given intravenously. A fairly quiet night ensued, chloretone being given three times and producing a definite effect each time. The jaw muscles were still very stiff and the head retracted. A further dose of 10,500 serum units was given intravenously on the following day. Recovery was now uninterrupted. Two more doses of serum were given intramuscularly on two successive days. The stiffness gradually disappeared.

On the sixth day after the first intraspinal injection, a well-defined erythema appeared on the back with vesication over the hips and buttocks. It caused considerable irritation and later spread all over the body. Lotio calaminæ was applied with good result and calcium lactate, grs. xxx., was given in the hope that it might accelerate the clearing up of the rash, which began to fade three days later. In the meantime rigidity had, to a large extent, disappeared, although there was still some stiffness in the muscles of the leg and abdominal wall. Recovery from this time was remarkably rapid and complete. The patient seemed little the worse for his experience, and was quite fit and able to get about the ward on his discharge to a convalescent home three weeks later.

It is a well-established fact that the longer the incubation period in a case of tetanus, the less severe are the clinical features and the better the prognosis, but in this case a relatively long incubation period was followed by symptoms which were undoubtedly severe. For 48 hours the spasms continued at intervals of 10 minutes, with the exception of two periods after injection of morphia. During this time the condition was so bad that hope was lost and palliative measures were alone considered. Once, however, the spasms had diminished in frequency and severity, there was no setback.

If any conclusion can fairly be drawn, it is the value of early and large dosage with serum, particularly by the intrathecal route. Serous and even purulent meningitis have been mentioned as complications of this treatment, but must be very rare, and the desperate nature of these cases would seem to justify the risk. The other point that arises is the value of morphia. This drug is not usually given, because of the respiratory difficulty, but here at least it apparently abolished the spasms, relieved the breathing, and procured much-needed rest. It might be considered an important factor in the recovery.

A CASE OF
EPILEPSY CURED BY OVARIECTOMY.

By R. R. S. MacKinnon, M.B., Ch.M. Sydney,
NEW SOUTH WALES.

This case seems to adduce evidence that dissociation of personality may be determined, in some cases, by alterations in the balance of the internal secretions of the ductless glands.

Two years ago I was asked to see a girl of 13 years. I had attended at her birth and had attended the father, mother, and other children for many years.

The child had suddenly developed a true epileptic condition coincidentally with or shortly after the establishment of her first menstrual activity. After a few weeks of surveillance and treatment by the usual methods I asked the parents to seek further advice. They chose a doctor of considerable knowledge and experience, but drugs and suggestion had no effect on the case. The child progressively developed more frequent and more severe fits, and sank into a mental state of vacancy, irrational irritability, and general mental and physical deterioration.

After 15 months' treatment, during which time I encouraged by suggestion all the efforts which were put forth, the parents asked me to take over the case again. At this time a diagnosis of appendicitis had been made and confirmed by X ray report. I presumed, with great diffidence, to disagree with this, as the clinical signs did not accurately endorse the diagnosis.

I took the following view of the case: Because the symptoms of epilepsy evidenced themselves at the onset of menstruation in a formerly normal child, expressed themselves with greater violence at each menstrual epoch, and became worse and worse as the fuller establishment of the active reproductive powers came on; because she developed a pronounced enteroptosis of all abdominal viscera, possibly due to endocrine derangement; because she was developing an enlargement of the thyroid, which had progressed to about the size of a medium-sized apple, and because the thyroid is a friendly antagonist to the ovary; therefore it seemed fair to opine that the symptoms were due to an over-secretion from the ovaries, and that the tenderness over the right side of the abdomen might be due to an abnormal ovary, not a pathological appendix. Further, that if it is a legitimate procedure to remove half a thyroid for hyperthyroidism, then it should be regarded as right to remove half the ovarian tissue in a hopeless case of this description. I put the position before the parents, and they were content to leave the case to my judgment.

Dr. Steer Bowker consented to perform the operation and the site was approached by a median incision. The appendix was free and normal, but somewhat congested, like all adjacent parts; this proved to be due to the state of the neighbouring ovary. The appendix was removed and the right ovary exposed and found to be at least twice the normal size, covered with multiple cysts, and congested. It was removed. The left ovary was normal except for one cyst about half the size of a pea. This cyst was destroyed.

After the operation the whole facial aspect of the patient changed with miraculous rapidity. She lost the vacant look which had been becoming more and more constant and marked and her intellect exhibited a marked "quickness

in the uptake" under test conversations. *In six days the goitre had entirely disappeared.*

In the second week of convalescence she had one attack of unconsciousness, lasting four minutes and not accompanied by a fit.

Since then she has progressed, mentally and physically, by leaps and bounds, as is shown by the following letter from her father four months after the operation:—

"It is a great delight to report the progress Joan has made recently. There has been a most wonderful change in her since her operation. She is now an alert, bright, happy girl, taking a very keen interest in her sewing, reading, music, and French; in fact there is nothing that she is not interested in. Physically there is also a great change. She has gained 17 lb. since her return home, being now 9 st. 3 lb. in weight. She has a lovely fresh bloom on her cheek, and to us all appears a most healthy girl. There has been no recurrence of any fits of temper or attacks of any description since her return."

The girl's health is perfect; her functions are accurate. The enteroptosis has disappeared. Her interest in surroundings is identical with that exhibited by any normal healthy child of her age. Her intellectual quickness and sense of humour are above the average.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

A MEETING of this Section was held on April 24th, with Dr. A. F. HURST, the President, in the chair. A paper on the

RÔLE OF THE KIDNEY IN NON-RENAL DISORDERS.

was read by Prof. I. SNAPPER, of Amsterdam, who maintained that the kidney was not an excretory organ only, and that it was possible to talk about it for a long time without mentioning the word excretion and using only the terms oxidation and metoxidation. It was a most important factor in the normal metabolism of fat, and the metabolism of abnormal fat mostly took place there also. The kidneys must be looked on as the principal organs where destruction of ketone bodies occurred. Insulin had been found to have a wonderful effect on diabetic coma, but from time to time cases were met with in which insulin would clear up all the hyperglycæmia, high ketonæmia, and acetone and diacetic acid in the urine, and yet the patient remained drowsy and died after one, two or more days of drowsiness. Most clinicians explained these cases as due to the impaired circulatory system; although the abnormal constituents of blood and urine ceased, the cardiovascular symptoms remained. Prof. Snapper did not deny that these played an important part, but renal symptoms could be discovered as well in many of the cases. Albuminuria was often present, and to some extent went parallel with the degree of ketonæmia. Both would reappear together if the treatment were dropped. Külz had pointed out that a symptom which might be regarded as a signal of diabetic coma was a shower of renal casts. This proved that there was a connexion between diabetic acidosis and impaired renal function. In many cases of diabetes there was retention of urea in the serum, and urea-retention was not infrequent in diabetic coma. It had been suggested that oliguria accounted for this; if no water was being excreted the urea had, of course, to accumulate in the blood. Insulin had an influence upon the excretion of water, producing oliguria, and possibly this anuric coma was to a certain extent caused by insulin treatment. It was certainly much more frequently encountered since the introduction of insulin. The explanation was not, however, satisfactory, for diabetic coma might be accompanied by polyuria with symptoms of urea-retention. Others had suggested that the urea-retention depended on abnormal protein metabolism, but this was not so. It had been proved that in these cases there was impaired excretion of nitrogenous substances by the kidneys during the coma. This was one of the most salient proofs that the function of the kidneys was impaired during diabetic coma. It was easy to suppose that excretion of all sorts of substances was also impaired. An early diabetic case which had been wrongly treated might form very large amounts of ketone bodies through inadequate nourishment. The hyperproduction might be so extensive that intoxication resulted even although the mechanism was unimpaired. Insulin would cut off the hyperproduction of ketone bodies and so cure the case. In an old diabetic, on the other hand, there had been prolonged intoxication and all the organs were impaired, including the kidneys. In this case a moderate production of ketone bodies would cause coma. Insulin would stop the ketonæmia, but the degenerated organs remained, and the patient died of impaired kidney function, of which the ketones were an indication. Pathological evidence of the impaired kidney function was not lacking. Coma kidneys had peculiar features, including a characteristic glycogen degeneration of the tubules. They were large and yellow, with fatty degeneration. There was often also a specific necrosis of the descending part of Henle's loop, hardly ever seen in any other kidneys.

The Swedish clinician Petrén had found that many acidotic diabetics could be treated satisfactorily with a high fat diet, provided that the proteins were strictly reduced. Fats were the main source of the ketone bodies in diabetic intoxication, and so most authorities restricted them, but Petrén had convinced those who had seen his work that this was unnecessary provided that the protein were reduced to 20 or 30 g. daily. Even a slight increase on the protein allowance would result in severe acidosis and coma. The elimination of nitrogen by the kidneys was their most difficult task, and Petrén's diet was one which spared the kidney function, so that the organ could destroy any amount of ketone bodies. It might be described as an alleviation diet for the kidneys.

Discussion.

Dr. R. D. LAWRENCE said that in his experience the case of diabetic coma which insulin could not cure was the case with marked circulatory deficiency rather than one with slightly damaged kidneys. It was an exception not to find casts and proteinuria in patients with diabetic coma, but the prognosis depended essentially on the condition of the circulation. It was almost possible to state from the start by the feel of the pulse whether the case would go into coma. He did not think it was proved that the small degree of proteinuria present really drove the patient into coma. Quite a number of diabetics had mild renal trouble and always passed some protein or casts; there was no proof that these were more liable to ketosis and coma than other cases. He agreed that oliguria was often present, but put this down as much to low blood pressure, making it impossible for urine to be secreted, as to any severe permanent kidney damage. He did not think any more ketosis was produced by a high protein and low fat diet than by Petren's diet. He asked if there were any quantitative data available as to the amount of ketone bodies secreted by the normal person, the nephritic, and the diabetic respectively.

Dr. E. P. POULTON said that in six out of nine cases of coma taken at random there was oliguria. He did not think that insulin quite explained the undoubted frequency—indeed, almost regularity—of diabetic coma. He had regarded the circulatory changes as the most important factors. A necessary part of the treatment of coma was to give large quantities of fluid, and this was not sufficiently emphasised. The fluid should be put into the alimentary canal. English physiologists had always regarded the liver as the organ which broke down harmful aceto-acetic acid into harmless β-oxybutyric acid, and he asked why Prof. Snapper had ascribed this function to the kidney.

Dr. GEORGE FAHR described recent work in the United States and in Germany, tending to show that the circulatory failure was a very important factor in diabetic coma. Measurements of the vital blood volume by the Congo-red method showed that fluid was lost from the system into the tissues, the blood pressure fell, the pulse became very rapid and of small volume, and the condition corresponded to that of advanced shock. Tannhäuser, in the Düsseldorf clinic, had found that the circulatory volume was quite remarkably decreased in diabetic coma, even to one-third or one-quarter of the normal, especially in those cases where insulin had been given without success. Sometimes it was impossible to restore the volume, and those were the cases that died. Where it had dropped definitely, nothing on earth would save the patient.

Dr. P. J. CAMMIDGE asked for some light on the statement that ketone bodies were destroyed by the kidneys. The whole difficulty about death from diabetic coma arose from regarding the condition as an entity. There were at least three or four varieties of diabetic coma, due to ketosis, to the kidney condition, to some failure of de-aminisation in the liver, and so on. He had known a patient die in coma without ever having had acetone bodies in the urine. Some 60–70 per cent. of patients had an increase of urea nitrogen, uric acid, &c., and often of creatine as well, so that there was a difficulty in excretion long before the onset of coma. Patients who developed coma were those who had a high urea nitrogen in the early stages; after treatment by insulin they relapsed. For this reason he had made a practice of restricting the nitrogen in the diet, which he believed to be as important as restricting the carbohydrate. Treatment must, however, depend on the type of patient; those with defective thyroid function required much more careful attention. Insulin might lead to a localised œdema, but later on many patients passed increased quantities of urine, even up to 9 litres daily. This was due to the fact that insulin combined chemically with the secretion of the pituitary. The total load the diabetic could manage was strictly limited, and any increase of either protein or fat must be accompanied by a decrease in the other.

Sir JOHN BROADBENT suggested that attention should be paid to the amount of ketone retained in the blood rather than to that passed in the urine. He asked whether ammonia played any part in neutralising fatty acids. Often a diabetic with albuminuria went on for a very long time, sometimes passing much albumin and much sugar. He asked what was the relationship of the amount of ketone bodies in the blood to that excreted in the urine in the diabetic and the normal subject.

Dr. PARKES WEBER asked whether any attempts had been made to raise the blood pressure in diabetic coma, and if so, with what success.

Reply.

Prof. SNAPPER, in reply, quoted a case with nothing abnormal in the urine save a trace of diacetic acid, who yet had 400 mg. per litre of diacetic acid and 500 mg. per litre of oxyacetic acid in the blood. The daily quantity of urine was normal. He asked how the death of this patient in coma could be explained on the circulatory hypothesis. Post mortem the kidney had been a typical coma kidney. A very rare symptom-complex in clinical medicine was that consisting of urea-retention with no oliguria, combined with low blood pressure. It was quite peculiar to renal insufficiency, which had nothing to do with a granular kidney. Cardiovascular symptoms without renal symptoms would not explain all the cases encountered. Renal difficulty could be demonstrated in a coma case by the phenolsulphophthalein test, which would reveal delayed excretion seven or ten days after "cure" by insulin. Very small amounts of protein could bring about disbalance between carbohydrate and fat. Obviously if the kidney had only a small amount of water at its disposal it could only excrete a small amount of toxic substances. The opinion that the liver acted on diacetic acid had been based on inadequate perfusion experiments. A dog's liver perfused with 500 mg. of β-hydroxybutyric acid yielded up only 100 mg. at the end, and 200 mg. of diacetic acid. It was therefore assumed that the 200 mg. which had disappeared had been oxidised. In those days it was impossible to analyse the liver substance. With modern biochemical methods it was possible to prove that the liver absorbed the missing 200 mg. of β-hydroxybutyric acid during the experiment. It did not absorb diacetic acid, because the surface tension was quite different. If the liver were perfused with diacetic acid the liver would be found to take up a good deal of it in the form of β-hydroxybutyric acid. If benzoic acid were perfused through the kidney with glycocoll, hippuric acid resulted. There was a whole series of homologues of benzoic acid each with one CH_2 group more than the one below. These groups had been named α, β, γ, and so on. In vitro oxidation in the β group had for long been unknown, and therefore it had not been recognised in vivo. Now it was known that β fatty acids are oxidised in the organism. If a dog's kidney were perfused with β-hydroxybutyric or diacetic acid a large amount would disappear—some 160–200 mg. in two hours—so presumably a man's kidney, working for 24 hours, could oxidise a considerable quantity. All fat normally digested went through β-hydroxybutyric and diacetic acid stages. These were not found in normal urine, being destroyed by the kidneys.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.

LATER PHASES OF ENCEPHALITIS LETHARGICA.

A MEETING of this Section was held on April 27th, when Dr. MONCKTON COPEMAN took the chair, and a discussion on Post-encephalitis and its Problems was opened by Dr. ALLAN PARSONS.

Ten years had now passed, he said, since encephalitis lethargica was first recognised in this country. Since then something had been learned of the epidemiology of the disease, its sporadic occurrence, its comparative prevalence in the colder months of the year, its special incidence in adolescence, its impartiality for the sexes, its indiscriminate incidence in all social grades, and its seeming independence of insanitary conditions. Much had still to be learned about the way in which it spread, its epidemiological relations with other diseases, and its relatively high incidence in this country as compared with abroad. The clinical zeal first brought to bear upon the strange syndrome was still needful, since differential diagnosis might be difficult, and the primary attack so slight as to escape recognition. The disease was really of small proportions, however; in 1926 encephalitis lethargica attacked only 0·06 per 1000 of the population, and though the case-mortality was certainly high, the toll it took of the general population in 1926 was only 34 per million living, as compared with 961 and 1362 respectively for tuberculosis and cancer.

Types of Case.

By post-encephalitis Dr. Parsons meant that chronic phase of the disease which often succeeded the acute attack and was marked by various symptoms which might be relics, residua, or after-effects. From the administrative point of view it was useful to classify the sufferers rather than the sequels, and he grouped them into three classes: those with mainly physical sequels, those who chiefly showed mental deterioration, and those who exhibited demoralisation. Among the physical sequels none was so well known as Parkinsonism, which was so common and important that it was regarded by some as almost synonymous with post-encephalitis. One table which he showed indicated mental sequelæ in 27 per cent. of cases, but this was probably an under-estimate, and in the Sheffield outbreak (1924) mental symptoms were said to have remained in 53·6 per cent. Post-encephalitic

patients with mental symptoms might broadly be divided into the excitable and restless and the depressed. The former included the very common nocturnal restlessness with inverted sleep rhythm in children. In lists of the sequels of encephalitis in children this disorder appeared always first or second in frequency, and probably occurred in 76 per cent. of juvenile post-encephalitis. An altogether different picture was presented by the passive or depressed type of patient. Inability to make any progress at school was due to dulled intelligence, impaired memory, and perhaps drowsiness, rather than to the restlessness, impatience, and lack of concentration which made teachers despair of the excitable type of child. Children in the advanced stages of Parkinsonism provided examples of the passive type of case, but it was mainly adult patients who suffered from mental anergia. The mental disturbance in both types of case might be severe enough to justify certification; the irritable, mainly for the sake of others, were admitted to institutions as suffering from hallucinations, with homicidal tendencies or mania; while the depressed, mainly for their own sake, were admitted by reason of melancholia, suicidal impulses, or complete dementia. In the third class, those who exhibited demoralisation, to speak of changes in conduct was almost to speak of post-encephalitis in children, but intellect in such children was often unimpaired, and in fact they might even appear strangely bright.

Care of Children and Adults.

Patients with post-encephalitis might conveniently be divided into two classes, according to whether the illness began before or after the age of 18. It was often difficult to decide whether the advantages of keeping a post-encephalitic child working as far as possible among normal children were not cancelled by the disadvantages to the other children arising from the presence in their midst of one or more pupils whose conduct and disposition had become abnormal. Generally speaking, except when children had only faint traces of their illness, a return to their usual school was impracticable. For some the schools for backward and mentally defective children would provide the extra individual attention and patience necessary to re-educate the diminished power of concentration and arrested intellectual development. From 1920 to 1927 the Home Office schools received 108 children of this type; of the 57 discharged, 54 showed no permanent improvement, and of the 49 remaining (2 had died), 10 were considered unsuitable for further retention. Attempts to train such children in Home Office schools were not justified by the results obtained. In any case committal to Home Office schools was for a limited period only, and the young offender—if he had not meanwhile come under the Board of Control—must eventually be released, and either passed into employment, sent home, or placed under the care of guardians. Up to the end of last year the post-encephalitic delinquents usually had no difficulty in avoiding the Board of Control because many of them were not considered mentally deficient, and because, where there was undoubted deficiency, this had not existed from birth or early age, and the patient therefore could not be certified according to the liberal interpretation of the Act. With the passing of the amended Mental Deficiency Act, however, the technical difficulty of the principal Act was removed, and this with the new definition of "moral defectives" should prove helpful in dealing with troublesome post-encephalitics. In the majority of cases the disposal of the patient in a suitable mental deficiency institution was probably the best course.

Dr. Parsons next described the position of the adult who returned home after prolonged illness in hospital. The family realised that the returned patient had altered in various ways and did not resume his accustomed rôle. He might be subject to aimless wandering, confirmed melancholia, lost initiative, impaired memory. Difficult problems were thus produced in the domestic circle, and when the powers and patience of the relatives reached breaking-point the removal of the patient from home became urgent. There was often, however, much difficulty in finding a suitable refuge. A certain number, by reason of melancholia, suicidal impulses, or general insanity, became certifiable, and found asylum either in mental hospitals or in the mental wards of poor-law institutions. Sufferers below the age of puberty might be placed under special care and homely discipline. An institution like the post-encephalitic unit at the Metropolitan Asylums Board's hospital at Winchmore Hill, offered some hope of improvement for the less demoralised juveniles. Some of the difficult cases who had reached puberty would in future be dealt with under the Mental Deficiency Act, 1927. The adult patients, as a class, did not require re-education and control so much as relief from anxiety and expert attention to their physical needs. For the large majority of such the poor-law institutions offered a refuge. In Bristol, Glasgow, and a few other places the local guardians had recognised the needs of post-encephalitis patients, and in collaboration with other local bodies had made special provision for them. The Board of Control had also realised that patients whose mental symptoms were due to encephalitis lethargica needed particular study, and provision for such patients was made at the West Park Hospital, Epsom, and at four or five other mental hospitals in the provinces. In conclusion, Dr. Parsons urged the necessity for further research to include the coöperation of all those interested in this subject, whether from the administrative, clinical, or any other point of view.

Discussion

The PRESIDENT said that Dr. Parsons had painted a somewhat depressing picture, but had rightly laid stress on the fact that the actual number of cases was relatively small. It seemed regrettable that notwithstanding all the work of clinicians and bacteriologists during the last ten years so little was known about this disease. It could not even be prophesied what was likely to happen—whether such a peak of the disease as occurred in 1924 was to be repeated. He wondered whether any means of treatment had been worked out along similar lines to the malarial treatment of general paralysis of the insane.

Dr. F. C. SHRUBSALL gave some recent statistics for London, concerning 403 cases which had been investigated during three years. Of this number 227 were still showing definite after-effects; 76 of these were paralysed or had Parkinsonism, and 105 were mentally or morally affected. The death-rate during the whole period had been 37 per cent.

Dr. J. D. ROLLESTON raised the ætiological question as to whether this disease attacked any particular class of persons. The suggestion had been made that it attacked those who had already some mental taint, but that view could not be sustained.

Dr. GRAHAM FORBES asked whether the mild cases were not liable often to develop the more serious sequels. He also mentioned an instance of familial susceptibility—a brother and sister (adults) both being infected, though at the time of the sister's infection and death the brother was abroad, developing the disease on his return home.

Dr. N. G. HILL mentioned a case in which malarial therapy was tried, but the patient became much worse, though there was slight relief at the close when quinine was used.

Dr. D. S. SUTHERLAND said that the late features might develop in quite slight cases. Ultra-violet baths seemed to act as an excellent tonic in such cases, but the cases in hospital were most benefited by the discipline and regimen of hospital treatment.

Dr. W. S. C. COPEMAN asked whether he was right in supposing that the only aspect of the post-encephalitic syndrome which interested the public authorities was the mental deficiency. Did the post-encephalitis unit include anything like systematic treatment of the other disorders, such as insomnia and salivation?

Dr. THOMAS CARNWATH had noticed that where the infection seemed to persist for many months

another case might eventually occur in the same home. The authorities responsible for treatment only burdened themselves with such cases as were referred to them by the school authorities or by the parents through difficulty in control either at home or school, and there were no doubt a good many cases with minor defects which did not come under the authority.

Dr. CLARK TROTTER said he had had to employ sanitary inspectors to elicit the information about the after-history of cases required by the London County Council, and as a consequence of Dr. Parsons's paper he would study their returns with more attention than he had so far devoted to them.

Dr. PARSONS, in a brief reply, said that the path of infection was probably through the nose. He had not been able to find that food was a source of infection. As a general rule the mild case did not give the bad sequels. Most of the bad sequels followed a severe primary attack.

Reviews and Notices of Books.

PROTOZOOLOGY.

Lehrbuch der Protozoenkunde. Founded by FRANZ DOFLEIN. Fifth edition. Revised by Prof. Dr. EDUARD REICHENOW, Departmental Director at the Institute for Marine and Tropical Diseases, Hamburg. Part I. Allgemeine Naturgeschichte der Protozoen. Jena: Gustav Fischer. 1927. Pp. 436. M.21.

THE fourth edition of this well-known text-book of protozoology was published in 1916, a few years before the death of the author. Since then many important changes have occurred in our conception of the protozoa, so that a fifth edition, revised by such a well-known protozoologist as Dr. Eduard Reichenow, will be welcomed. The book is divided into two sections, the first dealing with the natural history of the protozoa in general, and the second with the systematics of the group, and the special natural history of individual organisms and groups of organisms. The first section has been issued as a separate volume, the second section being promised for an early date.

The volume is divided into five parts—general morphology and physiology of the protozoa, reproduction and development, œcology, technique, and literature. Under these headings an excellent account of the general features of the protozoa has been given. As in previous editions, the subject has been dealt with from the purely zoological standpoint, and though due reference to parasitic forms, including those which produce disease, is made, no special emphasis is given to them. The text is clear, the general arrangement is good, and the 388 illustrations, many of them appearing in this text-book for the first time, are admirably selected. The discussions are lucid and well balanced, so that the whole account faithfully presents the modern aspect of the subject. The author favours the view that protoplasm is structurally a colloid. He adheres to the unicellular conception of the protozoa for, though it is evident that as an individual organism a protozoon corresponds with one of the higher multicellular organisms, this does not prevent a protozoon, from another point of view, being regarded as corresponding with a single metazoan cell, which in many cases conducts itself as a single protozoon. In connexion with nuclear division important recent work on the behaviour of chromosomes and centrosomes is reviewed and illustrated, while the subject of chromosome reduction in connexion with syngamy is carefully discussed in the light of recent work. As regards extranuclear chromatin great importance is attached to Feulgen's reaction which affords a reliable test of the nature of any granule in the cell. By its means it has been possible to exclude from chromatin many granules which were supposed to be of this substance. The recent work of Dogiel on conjugation as it occurs amongst the ciliates which inhabit the intestinal tract of ruminants is noted. Developmental cycles, regeneration, variation, and heredity are fully discussed, while under œcology sections are devoted to a consideration of incidence and geographical distribution, marine and fresh water protozoa, soil protozoa and parasitic protozoa, with special reference to the origin and type of parasitism, the influence of parasitism on the organisms themselves, the relations between host and parasite, the transmission of parasites, and finally the parasites of protozoa. In the technical section are described the most important methods which are required for the study of the free-living and parasitic protozoa, as also the more recently devised processes for the cultivation of the parasitic forms. The references to literature are classified according to the main subdivisions of the book. There is no index, but one will doubtless be issued with the second part, the intention evidently being to bind the two together to form one volume.

The work will be widely read, and will form a standard for reference and study for all serious students of protozoology.

THE ESSENTIALS OF OTOLOGY.

By GEORGE BIRMINGHAM MCAULIFFE, A.B., M.D., F.A.C.S., Assistant Professor of Otology, Cornell Medical College. London and New York: Humphrey Milford, Oxford University Press. Pp. 177. 16*s*.

Dr. McAuliffe holds that the majority of books on this subject are written to show the full scope of otology, are suitable only to the specialist, and include much information that the general student will never read and never use. He is surely in error here, for there are many excellent small manuals on otology, especially written to satisfy the needs of the student and general practitioner. The book before us can be fairly ranked among these; the style of writing is didactic, as it must necessarily be in a concise work of this kind, but the teaching is, on the whole, a reliable reflection of present opinion, though there are, of course, a few points which will not meet with universal agreement. Thus, he uses no stitches after the "acute" mastoid operation, but leaves the skin-wound entirely open; he appears to recommend syringing as the regular treatment of acute suppurative otitis after spontaneous or surgical perforation of the drum; and for the diagnosis of adenoids he considers digital examination the best method, and does not describe posterior rhinoscopy at all. The chapter on anatomy, which he thinks may discourage the student, has been relegated to the end of the volume. The rather inconvenient method has been adopted of discussing treatment in a separate chapter towards the end of the book; this leads to overlapping, compels the student to refer to two separate places for one subject, and in one case at least, that of furunculosis, appears to have led to the omission of treatment altogether. We believe that most students would prefer a work arranged in a more orderly manner, but practitioners may find the arrangement less inconvenient.

TEXT-BOOK OF CLINICAL NEUROLOGY.

By ISRAEL S. WECHSLER, M.D., Assistant Professor of Clinical Neurology, Colombia University, New York. London and Philadelphia: W. B. Saunders Company. 1927. Illustrated. Pp. 725. 32*s*. 6*d*.

THE purpose of the author has been to set down in straightforward fashion a digest of nervous diseases as they are known and recognised to-day, and his book has grown out of his own clinical experience, and embodies what may be termed his personal approach to bedside neurology. It follows accepted lines in covering all the usual diseased conditions of brain, cord, and peripheral nerves, and it includes sections on affections of the vegetative nervous system, developmental anomalies, the neuroses, and other "functional" states such as tics, spasms, and myoclonias. Possibly its outstanding feature is the

attention given to the pathological bases of these nervous diseases, which are illustrated as far as may be by a series of excellent photographs. The clinical illustrations, fewer in number, are also good. In different chapters some effort is made to elucidate the physiology of the symptoms described, notably in regard to the difficult group of striatal diseases, so called, and this is well done even if knowledge has not yet sufficiently advanced to allow of very definite conclusions to be drawn. Some 100 pages are assigned to methods of examination, a section seemingly held to be a sine qua non of neurological text-books; in this instance, however, it consists in large part of an interpretation of symptoms and signs.

Dr. Wechsler's book is readable and remarkably wide in its range, but at the expense of rendering some of the disease descriptions rather meagre and some of the semiological interpretations rather superficial. Of this the neurologist soon becomes aware as he reads through its pages; on the other hand, it serves its purpose well, and for the student and practitioner it appears to constitute a useful compendium of practical neurological medicine.

THE SPRINGS OF HUMAN ACTION.

By Prof. MEHRACK THOMPSON. London and New York: Appleton and Co. 1927. Pp. 501. 10*s.* 6*d.*

IN spite of the vast literature that is growing up on psychological topics, there appears still to be room for books dealing with psychology in general. Both publisher and public are apt to grow weary of this ever-increasing pyramid of literature. But as long as each author presents his subject from a new angle no great harm is done. Particularly so to-day, seeing that the new orientation in psychology—the dynamic standpoint—is hammered into the minds of those who await instruction. It is for this reason that Prof. Mehrack Thompson's book deserves a welcome. Whereas Dr. J. B. Watson's psychology has reduced man to a physiological Robot—reflecting, no doubt, the material success of the New World Prof. Thompson represents the young and enthusiastic American overflowing with creative will. He attacks psychology from the point of view of motive. He opens with the Urge of Physical Activity—Automatic acts—Habits and Instinctive motive, and passes upwards in crescendo to the more complex springs of actions—feeling—interest—ideas—personality—all regarded as psychological complexes which reinforce, direct and redirect the fundamental drives. Later, the group activities are themselves used as motives for action, and here suggestion and auto-suggestion come to full flower in the author's opinion. As can be expected, this treatment of the subject leads to an extraordinary amount of repetition. The lowest processes, as we have discovered in the study of psychopathology, are always present in the highest of our activities, and it is not always possible to say that at a given level the complex situation at the moment is acting as a whole and in virtue of its own intrinsic properties, or whether it is still driven forward by fundamental urges.

The result is that we are obliged to read through a very large book which might with very little sacrifice of usefulness and readableness have been reduced to half its present size.

MOSQUITO REDUCTION AND MALARIA PREVENTION.

Second edition. By J. A. CRAWFORD, M.B., Ch.B. Edin., Capt. R.A.M.C.; and B. S. CHALAM, L.R.C.P. & S. Edin., L.R.F.P. & S. Glasg. London: Humphrey Milford, Oxford University Press. 1927. Pp. 107. 4*s.* 6*d.*

THIS small book is written for the benefit of the malaria inspector, the N.C.O. in charge of an anti-malaria sanitary squad, or indeed of everyone whose business it is to destroy the anopheline vector of malaria, and who requires sound elementary knowledge to make his action effective. The book meets the demand; it is clearly written, satisfactorily illustrated, and has always in mind the practical daily needs of the field-worker. Among the useful appendices is a key to the female Indian anophelines, issued by the Central Malaria Bureau, Kasauli, while in the text there is a table showing their breeding habits and their distribution in India, together with comments which include an indication of those species which are actually malaria carriers.

The authors tend to stress those aspects of anti-malarial work with which they are mainly concerned—one sentence might be read as advice to discard mosquito nets, while elsewhere they throw doubts on the value of quinine in the fight against malaria. A suggestion, in spite of the book's title, that for the abolition of malaria an area must be rendered free of mosquitoes, is open to criticism. These points will perhaps be cleared up in a third edition. This, too, will afford the opportunity to eliminate such unexpected spellings as "larvacide," "*Stegomya faxiata*," and "*A. azriki*," and to rectify the slip which, in one place, mentions as masculine the adult anopheles sought for in houses.

The book is one of several, of varying range and size, which have recently appeared dealing with malaria in India. It could give good service elsewhere, and it forms a useful reminder that the malaria problem is essentially the same everywhere, and that other tropical parts of the Empire are unwise which do not take full advantage of the pioneer work which India has to offer them.

THE PEAKS OF MEDICAL HISTORY.

Second edition. By CHARLES L. DANA, A.M., M.D., LL.D., Professor of Nervous Diseases, Cornell University Medical College; ex-President of the New York Academy of Medicine. New York: Paul B. Hoeber. 1928. Pp. 105. $3.

THE last few years have seen a revival of interest in historical medicine, of which the demand for a second edition of Prof. Dana's book within two years of publication is proof. The author sketches briefly and clearly the progress of medical science from the time of Hippocrates to the middle of the nineteenth century, illustrating his text generously and well. For such of his readers, and we think there will be many, who are encouraged to dip more deeply into the subject, Prof. Dana adds a chapter of biographical notes.

JOURNALS.

NATURE. No. 3051. Vol. CXXI. April 21st, 1928. A supplement to this issue contains a series of concise articles by various authorities on different aspects of ultra-violet radiation. Some of the conclusions reached are summarised below. The Physical Basis of Light Therapy, by Prof. F. Ll. Hopwood. The author describes the spectrum of radiation, discusses the light used in therapy and its sources, defines the terms photo-electricity, fluorescence, phosphorescence, and explains the laws governing photo-chemical action. Prof. Hopwood points out that the reflecting, transmitting, and absorbing powers of a substance for light give no trustworthy indication of these properties for radiations in the infra-red or ultra-violet regions. Corning glass 980A transmits all solar radiations almost as freely as the more expensive fused quartz. Vitaglass resembles Corning glass 980A in its properties, but is not so transparent for equal thicknesses and also exhibits some deterioration in transmission after exposure to sunlight. Notes on the determination of quality and of intensity of radiation follow, while dangers, precautions, and contra-indications to light therapy are clearly set out.—Biological Action of Ultra-violet Rays, by Dr. Leonard Hill. The screening power of the epidermis and the penetration of radiations of various wave-lengths are discussed. The biologically active region of the ultra-violet rays is about 300 $\mu\mu$; these are largely absorbed by the epidermis and exert their action there. Given a sufficient dose of rays absorbed, coagulation and death of cells takes place. In lesser doses the inflammatory reaction increasse the bactericidal power of the blood, stimulates

recovery from certain skin diseases, and in some unexplained way promotes general vigour and well-being. The dangers of overdosage and the need for skilled medical supervision when disease is being treated are emphasised.—The Physiological Action of Ultra-Violet Radiation and its Use in the Home, by W. Kerr Russell. The author believes that the only form of this treatment which should be used at home is exposure of the whole body to the rays, preferably by means of the carbon-arc lamp, or by means of carefully screened mercury-vapour lamps. He summarises the precautions to be taken and discusses the immediate and remote effects of radiation on the body.—Ultra-Violet Radiation for Domestic Use, by Prof. S. Russ. The author considers that it is inadvisable and probably uneconomical to attempt to make good any deficiency of diet suffered by the general population by frequent doses of ultra-violet radiation. The risk run by repeated exposure of the body to a form of radiation to which it is quite unaccustomed is not negligible, and probably it would cost less to supply the deficient accessory food factor in the diet. The public cannot be prevented from using appliances for generating ultra-violet radiation in their homes, but they should not be advised to do so.—Medical Aspects of Artificial Sunlight in Private Houses, by P. R. Peacock. The establishment of more clinics where the poor, whose diet is short of fresh foods, can be treated under supervision is regarded as a more rational measure than the installation of sources of ultra-violet rays in the homes of well-to-do people whose vitamin intake and general conditions of life are relatively good.—Articles follow on the Selection of Lamps, by T. C. Angus and by B. D. H. Watters, and on the Ultra-Violet Transmission of Transparent Materials, by L. C. Martin.

AMERICAN REVIEW OF TUBERCULOSIS. February, 1928. Vol. XVII., No. 2.—In a statistical study of the relationship between pregnancy and tuberculosis, Miss Alice M. Hill suggests that hitherto this problem has been studied by the obstetrician who has had charge of women whose pregnancy has been complicated by tuberculosis, whereas a clearer understanding should result from a study of the tuberculous woman whose disease is complicated by pregnancy. A comparison of the condition of 160 women whose pregnancies accompanied, or immediately preceded, their tuberculosis with that of controls at one year and two years after diagnosis leads to the conclusion that pregnancy had no appreciable bearing on the progress of the tuberculous disease. The prognosis is bad, however, in the case of women whose tuberculous condition is only ascertained at a late stage of pregnancy. Thus, of the women whose disease was diagnosed before gestation, less than 1 in 12 had died a year after its termination, whereas for cases diagnosed during pregnancy the proportion was 1 in 5 and for those diagnosed after delivery, 1 in 3. As might be expected, the maternal mortality-rates for tuberculous women do not follow the mortality-rates for mothers in the general population in the matter of age at death, but correspond with the deaths at different ages of all tuberculous women.—Dr. H. B. Anderson discusses the tuberculous nature of pleurisy from the life insurance standpoint. Pleurisy with effusion is almost always tuberculous. Ordinary dry pleurisy is usually tuberculous, but care should be taken to differentiate between genuine pleurisy and the numerous other conditions in which pain is referred to the chest-wall—e.g., pleurodynia, myositis, and intercostal neuralgia. Patients who have suffered from these will often give a history of an attack of pleurisy. A patient of tuberculous stock, whose own physique is poor, who is underweight or is losing weight, and who has had an attack of pleurisy, should be regarded as a member of "a dangerous group which probably never become standard lives."—Drs. Saling Simon and Felix Baum present a preliminary report on their electrocardiographic studies in pulmonary tuberculosis. As the result of their investigations they conclude that the low potential sometimes found in leads I. and III. indicates the condition of *cor pendulum*, which is frequently noted in phthisical subjects of asthenic type. A weakened cardiac musculature is suggested by the height of the T-wave, which they have found to be lower than the average in tuberculous individuals.—Dr. C. T. Ryder writes on Innate Resistance to Tuberculosis (see p. 920).

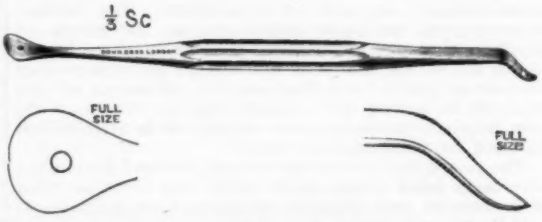
INDIAN PHYSIOLOGIST. No. 1. January, 1928.—This is a new venture in Indian medical journalism. The first number is almost wholly the product of the editor, who supplies interesting matter relating to some of the customs of Indian village life which have persisted through countless ages and for which he seeks scientific bases. He mentions, for example, the Hindu practice of worshipping the Sun God in a manner involving three 20-minute exposures of the uncovered body which resulted in many cures in devout tuberculous subjects. He explains certain native practices—e.g., the chewing of betel, as an attempt to supply deficiencies in a monotonous rice diet. If the journal is to make a wide appeal, the editor will have to be supported by the rapidly increasing number of Indian physiologists who are working on experimental lines.

BULLETIN OF THE OPHTHALMOLOGICAL SOCIETY OF EGYPT. Vol. XX. 1927.—This report runs into over 200 pages. The papers are nearly all by Egyptian-born members, while the subjects, except for historical papers on the development of ophthalmology in Egypt, are mostly clinical. The plates include one of glaucoma simplex of the right eye with nævus of the same side of the face, in which there is also a nævoid condition of the conjunctival and ciliary vessels; another of a traumatic hole at the macula, and another showing sections of different parts of a microphthalmic eye. Seventy-two members were present at the annual meeting of the Society, which is to be congratulated on its flourishing condition.

New Inventions.

A NEW FORM OF TONSIL DISSECTOR.

THE dissector here illustrated has proved most helpful in the dissection operation for the enucleation of tonsils. One end is bent at an angle of 45° to the shaft. This terminal portion is curved so as to fit accurately the contour of the tonsil. The point is just sharp enough to scratch through the mucosa



between the anterior pillar and the tonsil. Finding the correct plane between the tonsil and its bed is the key of success in this operation. This is perfectly easy in a large well-defined tonsil, but may be difficult in a flat adherent tonsil. The bent end of this enucleator makes the approach to the correct line of cleavage much easier. After the anterior pillar is separated from the tonsil the flat scoop end is inserted and the upper pole is separated and the whole tonsil stripped forward from the posterior pillar. The scoop end is admirably adapted for the latter part of the operation.

The instrument was made for me by Messrs. Down Bros., Ltd., St. Thomas's-street, S.E. 1.

T. B. JOBSON, M.D., B.Ch. Dub., D.P.H.
Guildford.

THE LANCET.

LONDON: SATURDAY, MAY 5, 1928.

PURPURA OF THE URINARY TRACT.

FOR many years surgeons have been puzzled to account for an illness with which they are occasionally presented, characterised by hæmaturia without any other symptoms. The condition has been called "essential hæmaturia," a name which has been objected to by some observers as begging the question of ætiology, though it must be admitted that the term has the merit of indicating that our present knowledge of the disease is confined to the single fact that the urinary tract bleeds. Kidneys which have bled in this way have been removed as a life-saving measure and examined microscopically; sometimes no real abnormality could be discerned, sometimes nephritic changes have been found. In other cases the bleeding has been supposed to come from enlarged veins at the apices of the pelvis, but all the explanations hitherto have been rather unsatisfactory. Mr. FRANK KIDD, in a presidential address to the Urological Section of the Royal Society of Medicine, which we print on another page, records his own observations on such cases and helps to clear our ideas on the pathology of a curious condition. He has shown that painless hæmaturia is sometimes one expression of a general tendency to bleeding, the obvious sign of a more generalised process. Such patients are apt to bleed from other parts of the body, purpuric patches being found sometimes on their limbs, sometimes in the mucous membrane of the bladder, where they may be revealed by cystoscopy. This last observation is suggestive. Most surgeons of experience will recall unexplained cases of hæmaturia in which hæmorrhages in the bladder wall were seen on cystoscopy and disappeared later, but in which the connexion with so-called essential hæmaturia was not recognised. Mr. KIDD would divide purpura of the urinary tract into two varieties: renal purpura, where hæmorrhages take place into the mucosa of the pelvis of the kidney and lead to exudation of blood down the ureter, and purpura of the bladder wall, in which the hæmaturia is accompanied by vesical pain and irritability. The true cause of the condition is still not very clear. It is surmised that there may be a deficiency of blood platelets, as in other forms of purpura, but this question has not yet been investigated. Another possible origin is a local infection of some kind. In support of this, Mr. KIDD describes purpura as occurring in three of his cases the day after the extraction of septic teeth; he has also seen severe purpura associated with a colon bacillus pyelitis.

Turning to treatment, Mr. KIDD found that in eight of 24 cases of renal purpura a nephrectomy was required to stop the hæmorrhage. Two of these however had recurrent attacks of hæmaturia of lesser degree, and two died within a few months although one kidney had been removed. Nephrectomy is not always required. It seems that an injection of anti-streptococcic serum is often effective in stopping the bleeding; the benefit so derived has been attributed to foreign protein, and a trial of plain horse serum or peptone has met with some success. Should these injections fail it would be worth while to try an injection of the patient's own blood (auto-hæmotherapy) or, finally, transfusion from a suitable donor before resorting to removal of the kidney. If it be proved in the future that there is a thrombocytopenia in certain of these cases it would be logical to remove the spleen, for splenectomy has proved effective in general purpura associated with alteration in the platelet content of the blood. The all-important question of how to recognise the disease still remains to be settled. Painless hæmaturia has so often been thought to be due, more than anything else, to a tumour, whether of bladder or kidney, that bleeding kidneys may in the past have been removed without necessity in order to prevent the spread of a malignant tumour. If a patient has painless hæmaturia and the blood is seen to come from one ureter, if infection of the urinary tract with the tubercle bacillus or other organisms can be excluded, if an X ray shows that there is no calculus in the kidney and there is a good passage along the course of the ureter for a fair-sized bougie, then it is essential to perform a pyelography. A tumour of any size is certain to distort the shadow thus obtained. If the pelvis and calices are of normal shape there is no need to contemplate a nephrectomy on the supposition that a malignant tumour is present; it is sufficient periodically to re-examine the patient's renal pelvis. A tumour, if present, will soon indicate its existence by alteration of the shadow. Mr. KIDD'S observations have gone some way towards clearing up doubt in a condition which has hitherto been obscure to the surgeon.

THE RARITY OF MULTIPLE PRIMARY MALIGNANT NEW GROWTHS.

IN his recent Linacre lecture Dr. J. A. MURRAY [1] drew attention to an important aspect of carcinogenesis. In the experimental investigation of tar cancer in mice he found that the development of a malignant new growth frequently affects the whole organism in such a way as to keep in abeyance the subsequent development of a second malignant new growth. If this observation is correct the phenomenon should manifest itself also in man by the rarity of primary malignant new growths and Dr. MURRAY has quoted some figures in support of his view. It is curious that this phenomenon has received so little attention by pathologists in the past, for there must obviously be abundant material in the post-mortem records of the big hospitals all over the world and the example quoted by Dr. MURRAY is sufficiently striking. It refers to the post-mortem material for the preceding 21 years of the Pathological Institute in Budapest. In 1559 tumours autopsies only five cases of multiple primary malignant new growths were found—i.e., one case every four years. Further evidence bearing on this point is presented in a recent paper by Prof. D. M. CHAJUTIN,[2] of the Pathological Institute of the Odessa Hospital. In two tables the author has collected from the literature figures illustrating the rarity of multiple primary malignant new growths. The first table gives their number in reference to the number of autopsies.

[1] THE LANCET, 1927, ii., 800.
[2] Zeitschrift für Krebsforschung, 1928, xxvi., 263.

TABLE I.

Author.	Total autopsies.	Number and percentage of multiple malignant neoplasms.
Redlich	5002	8 (0·16)
Harbitz	3613	16 (0·44)
Feilchenfeld	5022	7 (0·14)
Nepryachin	6048	5 (0·08)
Medwedew	4638	2 (0·04)
Gade	4212	32 (0·76)

Table II. gives the number of primary multiple carcinomas in reference to the total number of malignant new growths.

TABLE II.

Author.	Total carcinomas.	Number and percentage of primary multiple carcinomas.
Hansemann	1000	5 (0·5)
Redlich	507	2 (0·39)
Reichelmann ..	711	2 (0·28)
Feilchenfeld	507	10 (1·97)
Spranger	417	6 (1·44)

When multiple primary malignant new growths occur, they are as a rule two primary carcinomas. A combination of a primary carcinoma with a primary sarcoma is rare. More than two primary multiple new growths are extremely rare, especially if they develop at the same time. According to the author only two such cases are recorded in the literature. ROESCH [3] records in a paraffin worker, aged 72, a carcinoma of the skin, of the bronchus, and of the stomach. The other case, recorded by GÖTTING,[4] was a man, aged 58, and suffering from a carcinoma of the larynx, of the stomach, and of the rectum. Perhaps more frequently a somewhat different condition is met with where a malignant new growth has been removed by operation and one or two primary new growths develop subsequently. In one such case observed by SALTYKOW [5] a woman had been operated on for cancer of the breast. When she died a year later a carcinoma and a sarcoma of the thyroid were found at autopsy. In this case the tumours of the thyroid may already have existed at the time when the mammary tumour was removed. But it would be difficult to interpret in the same way the case observed by HARBITZ.[6] This patient first developed a cancer of the lip. This was removed by operation and 13 years later he developed a cancer of the penis. This again was removed by operation. There were no local recurrences after either of these two operations. Six years after the second operation the patient, who was then 70 years old, died with a carcinoma of the stomach. Prof. CHAJUTIN records a similar case of this kind. A woman, aged 47, developed a mammary cancer which was treated by removal of the left mamma. Eleven years later she developed a cancer of the uterus. The uterus was removed by operation. Microscopic examination showed the existence of two malignant neoplasms: an adenocarcinoma and a squamous-cell carcinoma. Quite recently Prof. A. FULLERTON [7] has described in our columns a case in which a sarcoma of the breast was followed twenty years later by an abdominal carcinoma. The rarity of such cases and the significance which attaches to them make a published record of them a matter of considerable interest.

[3] Virchow's Archiv, 1923, ccxlv., 1.
[4] Zeitschrift für Krebsforschung, 1909, vii., 675.
[5] Zentralbl. f. allg. Path. u. path. Anat., 1905, xvi., 547.
[6] Ziegler's Beiträge, 1916, lxii., 503.
[7] THE LANCET, Jan. 7th, 1928, p. 26.

DISTEMPER IN FERRETS.

DISTEMPER in dogs has in the past presented a very solid obstacle to all attempts to avert or lessen the force of its ravages. The great variability in severity of the disease has induced hope from time to time that methods of cure or prevention were being discovered; but the fact that distemper is extremely infectious and the uncertainty as to the result of infection in any particular puppy have for a long time almost frustrated experimental researches. The discovery by H. Carré in 1905 that the disease was due to a filter-passing virus, though confirmed by J. Lignières in the next year, was not universally accepted. The *Bacillus bronchisepticus* advocated by N. S. Ferry and others had a vogue for some years as the causal organism, but must now be relegated to the part of a secondary invader answerable for certain complications. The researches of P. P. Laidlaw and G. W. Dunkin[1] working at the National Medical Research Laboratories for the Scientific Committee of the "Field" Distemper Council have confirmed Carré's observation, though they found that filtration through Mandler and Pasteur Chamberland L 2 filters did not take place very readily and required special conditions. They have made a number of interesting and important observations on the virus and on the clinical behaviour and pathology of the disease in dogs and ferrets; they have established the identity of experimental distemper in ferrets and then atural disease in dogs and have shown that the disease in the former animals has a fairly uniform, severe, and usually fatal course. In the ferret they had available an experimental animal which bred more rapidly than the dog, was much smaller, more easily housed and reacted regularly to experimental infection. The extreme infectiousness of the disease and consequently the great care needed in isolation, however, still provided formidable difficulties to their work. It was found that a susceptible ferret could not be kept in the same small room, 7 ft. 6 in. by 5 ft. 6 in., with an infected animal without becoming infected also, although the two ferrets were placed as far apart as possible and great care taken to avoid accidental transference. The infection appeared to be carried through the air. In spite of these difficulties experimental research has been possible, knowledge has gradually accrued, and a prospect of preventive inoculation is coming into view. In the most recent paper [2] by Laidlaw and Dunkin a definite and highly successful method for the prophylaxis of the disease in ferrets is described. The virus used in making the vaccine consists of ground-up spleen from ferrets killed on the fourth or fifth day of illness. Several methods have been used to render the virus non-infective for use as a vaccine. Heating, storage in 50 per cent. glycerine and treatment with phenol or formalin are all in some degree suitable, but the use of 0·1 per cent. formalin subsequently neutralised with ammonia has been adopted as the usual procedure. Formalin has been employed partly in consequence of the success which has been obtained with formalised virus in protecting guinea-pigs against foot-and-mouth disease. The vaccine does not keep very well and the difference between the time of treatment needed to make the virus no longer infective and that which entirely destroys the protective power of the vaccine is not very great. This progressive deterioration of potency suggested that an efficient vaccine perhaps still contained living virus either greatly attenuated or reduced to a small fraction of the original content, but the authors believe that the vaccine probably only contains dead virus. In order to produce a lasting immunity and one which protects against all strains of the virus, it is necessary to give a dose of living virus soon after the vaccination. After such a double inoculation a solid and lasting immunity was obtained without any sign of the disease. Since immunity following the natural

[1] Jour. of Comp. Path. and Therap., 1926, xxxix., 201, 213, 222.
[2] Ibid., 1928, xli., 1.

disease is life-long, it is hoped that the protection following this prophylactic treatment will prove equally durable. The preparation and preservation of the vaccine still present difficulties and the need for a living dose to complete the immunity is an undesirable complication. This is especially disconcerting since the dose of living virus though not causing any overt symptoms of distemper has appeared in some instances to have caused the animal to become a carrier for a time. A further paper describing the results of experiments with dogs along similar lines is promised in the near future.

Annotations.

"Ne quid nimis."

THE AUSCULTATORY GAP.

IN estimating blood pressure by the auscultatory method the orthodox procedure is to raise the pressure in the armlet to about 200 or 250 mm. of Hg and then allow it to fall slowly until the characteristic sounds can be heard over the brachial artery immediately below the point of compression. As the pressure continues to fall the sounds change both in quality and intensity. At first they are clear but faint; later, they are accompanied by a rushing murmur; then they once more become sharp, at first increasing in intensity and then diminishing. Finally, the sharp sounds are abruptly replaced by a dull thud, and when the pressure has fallen another few millimetres the sounds die away. The first appearance of the sounds marks the systolic, and the sudden transition from sharp to dull sounds the diastolic pressure. In most subjects the arterial sounds conform fairly well to this description, and the determination of systolic and diastolic pressures is easy. Sometimes, unfortunately, this is not so; the transition from the sharp sounds of the third phase to the dull sounds of the fourth phase, instead of being abrupt, is gradual, and extends over a range of 20 mm. or more, affording no satisfactory diastolic end-point. The determination of the systolic pressure generally presents less difficulty, but a possible source of error, first pointed out by French and American workers some ten years ago, may occasionally lead to a wrong reading. In certain cases the normal sequence of the Korotkow sounds heard during decompression is interrupted by a zone of complete silence. This silent interval or "auscultatory gap," as it has been termed, usually replaces, in part or whole, the sounds of the second phase—i.e., those which are accompanied by a murmur. From a diagnostic point of view this is of some importance, since it may lead to an under-estimation of the systolic pressure, the sounds preceding the auscultatory gap being missed and their reappearance being taken as the systolic reading. Such a mistake can easily be avoided by first estimating the systolic pressure by palpation, a technique which is to be recommended, since it eliminates the necessity for submitting the patient to the needless discomfort of a high initial compression when his blood pressure is within normal limits.

The "auscultatory gap" was first noticed in cases of aortic stenosis, but subsequent observations have shown that it is not confined to that condition, but is frequently associated with hyperpiesis. Such was the common factor in a series of four cases recently reported in this journal by P. C. Gibson,[1] and in 28 out of 30 cases reported in America by S. G. Mudd and P. D. White.[2] Various hypotheses have been put forward as to the mechanism of production of the "auscultatory gap," and an explanation of its presence is to be sought in considering the different factors concerned in the production of the Korotkow sounds. Of these the first and most obvious are rapid vibrations in the arterial wall and eddies in the blood stream. Vibrations in the arterial wall depend, first, on the tension and structure of the wall, and, secondly, on the form of the pulse-wave. The steep wave-front of the typical Corrigan pulse of aortic incompetence produces a sudden shock which excites violent vibrations in the artery, whereas the slow-rising anacrotic pulse of aortic stenosis can slip through almost unnoticed. It is like a finely tapered wedge which glides quietly and smoothly into place. The sphygmogram in hyperpiesis is not unlike that of aortic stenosis, the upstroke rising gradually to a well-sustained plateau. Consequently, in both these conditions the force acting upon the arterial wall is such as to excite but little commotion. To turn now to the second factor—the condition of the wall on which these forces act. Decompression is divisible into three stages. During the first stage the compressing pressure is considerably higher than the diastolic pressure. During the second stage it is only slightly higher, and during the third stage the compressing pressure is lower than the diastolic. It is therefore only during the third and last stage of decompression that the effective internal pressure is sufficient to keep the arterial wall on the stretch throughout the whole cardiac cycle. During the first two stages the artery collapses more or less completely in diastole. Further, during the first stage of decompression the external is so much greater than the internal pressure that the passage of the pulse-wave cannot stretch the artery sufficiently to produce violent vibrations, such as occur during the second stage, which corresponds to the maximal oscillations as recorded by Pachon's or Erlanger's instruments, and to the sharp loud third phase sounds heard on auscultation. It is easy to understand why the slow rising pulse of aortic stenosis, or of hyperpiesis, may fail to produce rapid vibrations in the artery during the earlier stages of decompression, but it is more difficult to explain why the sounds, having once made their appearance, should afterwards die away as the compressing pressure falls. The most likely explanation of this curious phenomenon appears to be that the accumulation of residual blood in the artery during the second stage of decompression acts as a damper which further limits the vibrations of the arterial wall.

[1] THE LANCET, 1927, ii., 1012.
[2] Arch. Int. Med., 1928, xli., 249.

RESEARCH ON POLIOMYELITIS.

IN no field of medical practice is new knowledge more urgently desired than in that of the neurotropic viruses. The necessity of employing monkeys for the experimental study of these viruses has impeded progress by reason of the heavy cost involved, and although it is nearly 20 years since Landsteiner showed that the virus of poliomyelitis could be transmitted to monkeys, it is doubtful if the knowledge we have since gained of this and other neurotropic viruses has materially clarified the preventive and therapeutic outlook. On the practical side little has been discovered about the prevention and control of infantile paralysis in spite of the intensive study which has been given to the problem. The present is a favourable time for a new attack on the problem, for the last decade has witnessed considerable developments in our knowledge of virus diseases and their methods of attack. The medical profession will therefore welcome the formation of an international committee for the study of poliomyelitis under the distinguished chairmanship of Dr. William H. Park, director of the Bureau of Laboratories of the New York City Health Department. Arrangements have been made for a concerted three-year attack on the difficult problems of prevention and therapy presented by this formidable and crippling disease. To enable research to be carried out at a number of centres, both in the United States and in Europe, a sum of $250,000 has been given by Mr. Jeremiah Milbank, a prominent New York financier who takes an active personal interest in hospitals and charities. The following are the centres which have been chosen

for the proposed researches: Bureau of Laboratories, New York City Health Department, the Pathological Institutes of Columbia, Harvard, and Chicago Universities, the Pasteur Institute, Brussels, and the Lister Institute, London. As the work progresses it is hoped to enlist the coöperation of other institutions and laboratories. The various institutes are represented on the international committee by their respective heads, and the full personnel of the committee is as follows: chairman, Dr. W. H. Park; vice-chairman, Dr. J. A. Blake (New York); Drs. E. O. Jordan and Ludvig Hektoen (Chicago), Drs. F. P. Gay and Frederick Tilney (Columbia), Drs. Milton J. Rosenau and Hans Zinnser (Harvard), Dr. Lee K. Frankel (Metropolitan Life Insurance Company), Sir Charles Martin (Lister Institute, London), and Dr. Jules Bordet (Pasteur Institute, Brussels). Mr. Samuel M. Greer and Dr. Josephine N. Neal will act, respectively, as treasurer and secretary, and the committee's headquarters will be Dr. Park's office at the Bureau of Laboratories, East 16th-street, New York. Directors of research at each selected centre will be absolutely free to initiate such investigations as seem to them desirable and within the compass of their respective institutions. The results of such researches will, however, be studied and coördinated by the international committee, and will thus constitute a joint piece of work. At the Lister Institute the proposed research on poliomyelitis, for which special arrangements are being made, will be under the direction of Prof. J. C. G. Ledingham. The generosity of Mr. Milbank in making the new venture possible will be widely appreciated.

CONCOMITANT SQUINT.

In the quarter of a century that has elapsed since the publication of Claud Worth's views on squint very little has been added to our knowledge either of the causation of this condition or of the best means of treating it. Dr. Oscar Wilkinson,[1] of the Washington Eye and Ear Hospital, while fully recognising the value of Worth's work and largely quoting from his book, purports to improve upon his theory of the causation of concomitant squint. According to Worth the most important factor in the causation of concomitant squint is a congenitally defective fusion faculty. Wilkinson suggests that the weak point in this theory is that most cases of concomitant squint develop in children after they are 3 years old and have enjoyed binocular vision for two or three years. It is not so much a defect in the fusion faculty, he believes, as it is a disturbance or want of harmony in the proper uniting or coördinating of the several stimuli or retinal reflexes sent in to the centres for convergence. "The eyes are straight for three or four years and then cross. Why does fusion break down after three or four years' use?" he asks. It seems to us that this criticism of Worth's theory is hardly justified if the theory as expounded by its originator is carefully studied. The fusion faculty, according to Worth, is by no means identical with the faculty of binocular vision. The conjugation of the eyes for horizontal movement (intended to subserve the function of binocular vision) is perfected within the first few months of life. On the other hand, the power of completely fusing the two images is only gradually acquired and in the normal child is only perfected about the sixth year of his life. In the interval the coördination of the two eyes is, as it were, in a state of unstable equilibrium and may be upset by a variety of causes or a combination of causes, hereditary influence being often a marked feature. In some cases uncorrected hypermetropia is an important factor in upsetting the nervous mechanism (Donders's theory). In many cases the onset of squint occurs after whooping-cough or measles or after a severe fright which may be enough to influence this mechanism adversely in the absence of a fully developed fusion faculty. When once, however, this faculty is attained it is by itself sufficient to ensure against squint. We note that Dr. Wilkinson lays great stress on the accurate and periodical measurement of the angle of a squint. If, he says, at any age the degree of squint is not decreased after four to six months of careful attention, it becomes a case for operation. Accurate measurements for both far and near are diagnostic as to cause (anomaly of convergence or of divergence) and in operative cases determine largely the procedure to be followed. When operation is not performed Dr. Wilkinson stresses the need for constitutional treatment. "It must be admitted," he says, "that the general physical condition of the squinting child is usually far below par, and I can scarcely recall a case of squint in whom the general nervous system was even up to a low normal." The recommendations for training the fusion sense and binocular vision are largely taken from Worth with amplifications.

His views on operative treatment deserve close attention. After quoting the very divergent opinions of various authorities on the best age for operating on squint, he gives his opinion that when treatment with atropine and glasses do not markedly reduce the degree of squint within the first month they do not do so subsequently, even though they be used for years. Any child, he says, at or above the age of 5 years who is cross-eyed is a neglected child and should be relieved of its deformity. In this he differs from Worth and most authorities, who only operate early in those cases where there is a good prospect of establishing binocular vision. In those cases where the capacity for developing the fusion sense is proved to be absent, Worth prefers to wait until the child is old enough to be operated on under a local anæsthetic before correcting the deformity. As to simple tenotomy, Wilkinson agrees with all modern operators in condemning it as a routine procedure. An internal tenotomy is never justifiable in a patient under 12 years of age on account of the uncertainty of its result and the possibility of the later development of secondary divergence. He devotes much attention to advancement and resection operations, and describes his own procedure in detail. It differs from that ordinarily practised in several respects. In the first place, he attaches the cut end of the muscle tendon not to the sclera itself but to the cut scleral end of the tendon, and he therefore gets his effect not by an advancing of the place of attachment to the sclera but entirely by a shortening of the tendon. The amount of this shortening he regulates by a graduated rule by means of which he can accurately measure the length of tendon to be cut off. He recognises that the uncertainty of the amount of pull which will be exercised by the opposing muscle is liable to interfere with the result of this accurate measurement, but to counteract this he has devised a scale to test the power of the opposing muscle, and he employs what he calls a brace, the purpose of which is to put it out of action during the period of healing. With these methods of exactitude he claims to have secured good results in many hundreds of cases.

[1] Strabismus: its Etiology and Treatment. By Oscar Wilkinson, A.M., M.D., D.Sc., Surgeon-in-Chief of Washington Eye and Ear Hospital. London: Henry Kimpton. 1928. Illustrated. Pp. 240. 42s.

INNATE RESISTANCE TO TUBERCULOSIS.

Dr. C. T. Ryder, writing in the *American Review of Tuberculosis* for February, gives it as his opinion that acquired immunity plays but a small part in determining resistance to tuberculous infection, which he believes to depend chiefly upon a natural innate or hereditary immunity. The tubercle bacillus, he points out, is a universal virus and most children are infected in early life. If such an infection were followed by an acquired immunity he would expect to find a high death-rate in the period of first infection, followed by a low death-rate thereafter. Thus the mortality curve for tuberculosis would resemble those of whooping-cough and measles, whereas the death-rate for the former

is relatively low during the period of primary complexes and high throughout the periods in which a measure of "immunity" is supposed to have been established. The curve of the tuberculosis death-rate more closely resembles those of influenza and pneumonia, diseases which confer only a transient immunity. The high death-rate from tuberculosis in the first two years of life is attributable, Dr. Ryder considers, to an infant's "almost marsupial" dependence upon, and contact with, infectious adults. In general, he says, children of Anglo-Saxon origin have a high resistance to first infection, but tuberculosis is not one of the diseases in which infection is followed by an effective increase in resistance or security against death from the same disease in later life. The relative immunity of civilised races to the more fatal forms of tuberculosis as contrasted with savage races recently brought in contact with infection is explained by "the simple evolutionary formula of survival." A race long exposed to a disease has a much higher innate resistance to it than a race newly exposed. Dr. Ryder maintains that a first infection, even though successfully resisted, sensitises more than it protects. If a secondary infection occurs, the sensitised tissues tend to slough rapidly, and such sloughing leads to dissemination of the bacillus, especially if the lungs are affected.

MEDICAL MOVIES.

THE bulk of the subjects which are displayed by means of the cinematograph are at the best purely frivolous and at the worst degrading. But we must frankly recognise that it is only the widespread popularity of these types of demonstration that have led to the technical improvements in apparatus and methods which now make it possible to explore many problems in the medical sciences with unrivalled precision. The development of the compound microscope similarly owes a great deal to ingenious men who were more interested in seeing curious and astonishing spectacles than in the progress of natural knowledge, and Dr. R. G. Canti, whose achievements in cellular cinematography will be familiar to many of our readers, may owe more than he may suspect to Mary Pickford. We may see plainly what the movies can do for physiology if we reflect what a lot of trouble they would have saved Harvey in making out the heart beat and if we look at Marey's attempts to explain in detail how a man walks and runs with the elementary successive photographs which were available for him 50 years ago. It is obvious that the method is unique in enabling us to obtain a permanent record of a series of rapidly succeeding events which we may afterwards study at leisure either in sequence or as individual pictures; and conversely, in demonstrating the sequence of movements and changes which extend over hours by speeding them through their stages in quick time. We can get knowledge through the cinematograph which we can get in no other way. Whether the method has any further legitimate applications in medicine is a question on which there has been some difference of opinion and practice. It is neither an excess of puritanism nor extravagant conservatism to condemn wholeheartedly the taking of films of technical medical procedures—operations, examinations, and the like—and their exhibition to lay audiences; the practice is simply indecent. And there is, and is bound to be, some doubt as to how far films should be used in educating medical students. Employed in moderation and with discretion, they can fill up some of the gaps in realism which are left by the current methods of didactic and practical instruction. But their association with picture houses makes it more necessary than ever that any miraculous and extravagant elements should be most carefully avoided; as things are, it is one of the besetting sins of the student to pay more attention to the strange and bizarre than to getting a proper understanding of the ordinary and commonplace. Those who use them or contemplate using them might also do well to reflect at length on that fine saying of Bishop Hall which should be carved over the entrance of every medical school: "God sells knowledge for sweat." For the information and instruction of medical men of more mature experience, films no doubt have a definite value of rather limited range and at the present time the most profitable field for their employment seems to be in public health propaganda among the laity. No one who saw the queues of sober men and women waiting recently to get into the venereal disease show at the lower end of Tottenham Court-road [1] or who heard accounts of what they had seen there can doubt that on the whole such exhibitions make for the advancement of good health and the promotion of good morals. Their preparation needs much care and thought. Primarily they must represent the literal truth, and though they must necessarily emphasise the points they want to make they must be purged of the miraculous and extravagant; no one is quicker to detect an unreal exaggeration of technical matter than an audience of lay people. The precise mode of presentation must be left to experience and the experts. Few films of which healthiness is the main topic can possibly run for two or three hours; medical matters might appear as subsidiary sections much in the same way as the topical pictures of current events or perhaps better still as bye points in an ordinary tale; Charlie Chaplin could do as much with "drink more milk" as with any other slogan.

TERMINAL DISINFECTION.

SLOWLY but surely a conviction is growing among medical officers of health and general physicians that the traditional methods of disinfection require revision. The early discoveries in bacteriology were the foundation of a general belief in the survival of disease germs on fomites, and the attempt to disinfect places and inanimate objects which have been in contact with patients has been one of the chief preoccupations and channels of expenditure of public health authorities all over the world. The reaction against this indiscriminate and costly industry has been fostered by new discoveries in epidemiological and bacteriological research, and perhaps even more by a realisation that the risk of contamination of surgical wounds by any object not brought directly within the field of operation is negligible. The most notable contribution to the subject within recent years is undoubtedly the monograph "On the Practice of Terminal Disinfection," published by Prof. C. Chagas, Director-General of Public Hygiene of Brazil, in the *Bulletin Mensuel d'Hygiène Publique*, for May, 1926. This paper, on which we commented a year ago,[2] translated into English, is now published as a separate pamphlet,[3] and should be read by every medical man who is in any way connected with the struggle against infectious illness.

Prof. Chagas's theme is that terminal disinfection, as practised in most countries, "is a procedure erroneously founded, almost always useless, and whose practical results bear no adequate relation to the labour and the cost involved." His main objection to it is the impossibility of finding the germs which it is desired to kill, and the consequent necessity of blindly and wastefully disinfecting the whole of the premises under suspicion. The solutions leave untouched numberless crannies in which germs may survive. Experiments, of which he quotes Flügge's, have shown that cleansing operations far more rigorous than are ever used in ordinary practice cannot destroy all the organisms in cultures placed on walls and floors, and that ordinary antiseptics require an enormously longer time to act effectively on infective material than they are ever allowed. Fumigation has been described by Dr. Andrew Balfour on unimpeachable evidence as "undoubtedly a process of camouflage." To modify the current methods by increasing the strength or prolonging

[1] See annotation in THE LANCET, Feb. 4th, p. 247.
[2] THE LANCET, 1926, ii., 610.
[3] William Hodge and Co., Ltd., Glasgow. 1928. Pp. 45. 2*s*. 6*d*.

the application of the disinfectants would be impracticable on many grounds. The testimony in favour of these arguments is so strong that few well-informed persons will venture to doubt them. But, as Dr. Chagas points out, the real objection is not so much in the technical uselessness of terminal disinfection as in the fact that it is terminal at all. The channels by which infection is disseminated are not the surroundings of the patient, but his excreta, including sputum. By the time the sanitary corps arrives the harm has been done; outside persons have been infected, and a large proportion of them have commenced a busy and destructive career as carriers.

Finally, the part that terminal disinfection plays in allaying public anxiety unjustifiably is almost as deleterious as any of its other evils. The knowledge that a ritual which will clear up all trace of the disease is to be performed at its end undoubtedly leads to the neglect of just those simple precautions which, taken during the course of the illness, would do away with even the hypothetical need for terminal disinfection. Given efficient "current disinfection"—i.e., the sterilisation of all articles soiled by the patient's excreta and the prompt disposal of the excreta themselves—very little remains to be done. The kind of terminal disinfection recommended by Prof. Chagas consists of the cleansing, by ordinary physical or chemical means, of articles that have been in direct and recent contact with the patient; the disinfection of obviously contaminated objects; the vigorous use of soap and water, and the liberal application to the sick-room of sun and fresh air. Even this is largely superfluous, he says, when current disinfection has been properly carried out, and he goes on to prove the uselessness of terminal disinfection for each of the common epidemic diseases separately.

MOSQUITO-PROOFING IN INDIA.

IT only needs a rough computation to indicate what is the loss to the Army in India from insect bites. In 1926 sickness in hospital accounted for 660,000 working days or an average of 11¼ days per man. Of these admissions a quarter were for venereal disease, a twelfth for injuries. Of the remaining two-thirds a quarter, (say) 110,000 days, were attributed to the attacks of biting insects—mosquitoes carrying dengue and malaria, sandflies with their own special infection, and others (culicidæ, for example) to which the Army Health Report for that year ascribes "much of the inflammation of areolar tissue." It may therefore be said without exaggeration that 20 per cent. or more of all the illnesses that come to attack our soldiers in India can in peace-time be prevented if we effectively protect them from the assaults of insects, and it is this realisation no doubt which is reflected in the increasing interest taken in mosquito-proofing of barracks and hospitals.[1] If all openings are covered carefully by an expert with copper gauze, this affords complete protection against insects of all kinds—flying beetles, and culicidæ as well as anopheles; the rooms are cooler, and as mosquito nets are unnecessary the men get more good of the punkahs and sleep better. The method is not novel; mosquito-proofing of houses is an old and well-known story in the Roman Campagna, and at Panama; it was the final act in the extinction of malaria during the late war in the large rest camp at Taranto in the hands of the late Colonel J. C. Robertson, I.M.S.[2] Hygiene makes slower progress perhaps in India than elsewhere, but in 1925–26 mosquito-proofing was tried at Lahore, the most highly malarious of all the large stations, with results as striking as could be wished. From August to October, 1926 (the malarial season) 500 men in unprotected barracks had a hospital admission-rate for malaria of 47 per 100, while 300 men in mosquito-proofed barracks had a rate of only 18 per 100, or a saving of 89 cases. Taking the average stay in hospital of malaria cases at 8·8 days, this means some 800 days of illness avoided, disregarding unrecorded periods of light duty and convalescence. Added to the general knowledge we have of malarial prophylaxis elsewhere these figures appear to be decisive, and would justify the instalment of screen protection all over India, beginning with stations of high malarial incidence (say) over 150 per 1000. If it be contended that the cost is high, so also is the cost to the State of the British soldier in India, and this cost is rising while the medical service is diminishing. The rubber growers of Malaya have found that sanitation pays, and Sir Malcolm Watson has told us that the £4 per coolie spent on malaria prevention has had an immediate return. The United States spent £20 to £700 per sq. mile in the war on the protection of their home camps against malaria. In Palestine the Army spent 12*s.* per man (£40,000 in all) on malarial protection of the troops to prevent Lord Allenby's forces from melting away before his break-through. What value, it may well be asked, have the 800 working days saved to 300 men of the garrison of Lahore by mosquito-proofing? Nor does the benefit end there, for we have to take into account also the fewer carriers of gametes in barracks to infect later broods of anopheles, and so in their turn other human victims. The 90 cases saved would have each required at least an ounce of quinine, a total saving of some £9 among 300 soldiers. And in 1926 there were in India 56,000 soldiers not counting officers and their families.

[1] See articles by A. C. Munro, Jour. of the R.A.M.C., October, 1927, p. 248; N. J. C. Rutherford, ibid., January, 1928, p. 76, and April, 1928, p. 316; J. E. M. Boyd, ibid., April, 1928, p. 287.

[2] THE LANCET, 1920, ii., 30.

CIRRHOSIS OF THE LIVER.

MODERN pathology would assume, in the absence of very definite evidence to the contrary, that the increase of fibrous tissue in ordinary portal cirrhosis is a replacement fibrosis—that is, that the growth of connective tissue is not the primary change, but follows a destruction of the parenchyma of the liver. The difficulty of this view has been that degeneration limited to the peripheral parts of the lobules is very seldom seen in human post-mortem material; it turns up now and again, but cannot be associated with any particular precedents except possibly pneumococcal peritonitis. Most of the poisons which affect the liver destroy the central zone of the lobule (e.g., phosphorus, chloroform, deficiency of oxygen, jaundice), and the bacterial focal necroses (e.g., typhoid fever) are scattered irregularly without any definite zonal distribution. Prof. F. B, Mallory has endeavoured in recent years to connect chronic copper poisoning with liver cirrhosis, and it is just possible that the recent decline in the frequency of the disease is due as much to giving up copper cooking vessels as to moderation in alcohol. But experiments with manganese have given more suggestive results. Dr. G. M. Findlay[1] showed that manganese caused hepatic cirrhosis in rabbits, guinea-pigs, and rats, and his experiments have now been confirmed and elaborated by Drs. E. W. and P. E. Hurst.[2] It is quite clear from their results that manganese salts give the necrosis required on a priori grounds, which is limited to the periphery of the lobules, and that this is followed by a reparative fibrosis which ultimately gives a condition quite like human cirrhosis. Control experiments with chloroform and phenylhydrazine, which cause necrosis of the central zone of the lobule, very rarely showed any cirrhosis. The interesting observation is also recorded that the cirrhosing effects of manganese are greatly enhanced by repeated intravenous injections of living *colon bacilli*, recalling Adami's work on the relation of chronic bacterial infection to the disease. Whether manganese can reasonably be implicated as a cause of human cirrhosis is uncertain. Industrial manganese poisoning gives rise to nervous symptoms resembling paralysis agitans and to emotional disturbances; experience at autopsy is inadequate to show whether

[1] Brit. Jour. Exp. Path., 1924, v., 92.

[2] Jour. of Path. and Bact., 1928, xxxi., 306.

the hepatic cirrhosis which has been found once is frequent or usual. It is a widely distributed element and few samples of the surface of the earth and the things which are on it will fail to show some evidence of its presence. There is, however, very little in the tissues of birds and mammals (though they must often take in considerable quantities in their food) or in quickly growing plants such as cabbages or cereals; domestically there is no particular and general use for the metal or its salts and even permanganate as a disinfectant is rarer than it used to be. It is difficult to see how man would in these ways come into intimate contact with any but traces of manganese. On the other hand, it accumulates to a remarkable degree in the leaves of some trees and in some invertebrates, notably slugs and mussels, and it seems to be worth while to analyse some of the bypaths of human food, especially the tasty additaments which are supposed to stimulate an appetite in the chronic gastritis of alcoholism.

THE COLOUR OF THE SKIN.

IN connexion with phototherapy a good deal of work has been done on the absorption of ultra-violet light by the skin, but the general question of the reflecting and absorbing powers of the skin for light of different colours has received little attention. Not much has been found out about the differences in this respect between the skins of different races, and a paper on this subject by Mr. J. H. Shaxby, D.Sc., and Mr. H. E. Bonnell in the April issue of *Man* forms an important contribution to the literature. They used a photometric method in which the skin is illuminated and the amount of light which it reflects is compared with the amount reflected by a standard matt white surface of the same area. Successive observations were made with white, red, and green light, first with a given area of skin and then with the standard matt white surface. The ratio of the various readings obtained with a given colour gives the reflecting power, or the reflection-coefficient, of the skin for this colour. The reflecting power of human skin was measured for about 270 subjects, European and negro, the Europeans being mostly Welsh or English. In addition reflection-coefficients were found for different parts of the body. It was found that when white light is used the parts of the body arranged in order of increasing power of reflection are, for Europeans, the palm, back of the hand, forehead, cheek, outer side of the arm, and inner side of the arm. For negroes the corresponding order is the back of the hand, forehead, outer side of the arm, cheek, inner side of the arm, and palm. The ratio of the reflection-coefficients of negro to European skin are roughly 60 per cent. for the palm and 30 to 40 per cent. for the other regions examined. The variations with green light run almost parallel to those found with white light. For red light the tendency seems to be for the fairer subjects to show relatively less reflecting power—that is, the swarthier skin is also slightly the redder skin. Relative ruddiness of tint is measured by the ratio of the red to the green light coefficient and is termed "red-green ratio." Records of reflection by the cheek show that a negro may be ruddy or pallid within about the same limits as a European. Dr. Shaxby and Mr. Bonnell conclude from their experiments that there seems to be no essential difference in type between the reflection of white and coloured skins, negroes in this respect differing from Europeans only in the amount of melanin pigment in the skin.

As we have already announced, a conference on rheumatic diseases will be held at Bath on May 11th and 12th under the presidency of Sir George Newman. The three sections will be devoted to Social Aspects, Causation, and Treatment, and a large number of papers will be read concerning the acute rheumatism of childhood and also the various forms of arthritis and fibrositis affecting older patients. Medical questions in connexion with the conference should be referred to the hon. medical secretary, Dr. Vincent Coates, at 10, The Circus, Bath, whilst copies of the full and interesting programme may be had from the hon. organising secretary, Mr. John Hatton, at the Pump Room, who will also make arrangements for railway vouchers and hotel accommodation.

THE Croonian Lecture of the Royal Society will be delivered at Burlington House, on Thursday, May 10th, at 4.30 P.M., by Prof. Ivan Pavlov, of Petrograd. The subject will be Some Problems of the Physiology of the Cerebral Hemispheres. Prof. Pavlov, who is a Foreign Member of the Society, paid his last visit to this country in the summer of 1923, shortly before the publication of his classical treatise on conditioned reflexes.

THE death is announced of Dr. Reginald Spencer Pearson at the age of 62. Dr. Pearson was Mayor of Lambeth last year.

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CCLXXIV.—TREATMENT OF RICKETS.

I.—PROPHYLACTIC MEASURES.

THE prevalence of rickets in London and probably throughout Great Britain has been greatly diminished during the last few years, but the present position cannot be regarded with complacency. The means for eliminating all but the slightest manifestations of this disease are readily available, yet efficient prophylaxis is very often omitted even when infants are under medical supervision. The following figures show the wide prevalence of rickets of a grade which is radiographically recognisable—the true incidence would be higher than the figures suggest as changes may be present in the bones of the head and the thorax before they are apparent at the wrist. Of 167 unselected infants of from 1 week to 2 years old seen in the out-patient department of the Queen's Hospital for Children in April, 1925, 8 per cent. had radiographic evidence of rickets, the percentage rising to 15 if only those aged from 4 to 13 months are included. This series did not include cases sent to hospital for rickets, and the disease appears to be much commoner in many parts of the British Isles than it is in London.

Diagnosis.

The basis of diagnosis differs widely, but since more efficient treatment is closely connected with better diagnosis I would suggest that, where radiographic and chemical findings are not available, diagnosis should be based only on clinical evidence of *changes in the bones* and not upon head-sweating, pallor, late dentition, flabby muscles, pot-belly, or an excessive deposition of fat, all of which are often found in non-rachitic infants.

The early bone changes require careful and systematic examination for their discovery. Among the most useful are: craniotabes, enlarged rosary, and enlarged epiphyses. During the second six months of life an enlarged rosary is probably the most valuable early sign, but in an infant aged 4 to 7 months craniotabes, developing behind the ears, is often one of the earliest signs, and craniotabes is the only conclusive clinical sign of *active* rickets which we possess. As soon as the process of "healing" begins—i.e., as soon as normal calcium deposition is re-established—calcification of the soft areas in the skull is increased, and craniotabes has usually completely disappeared within four weeks of the beginning of efficient treatment. Craniotabes, however, is rarely found in London after 9 to 10 months of age, and, in its absence, although a guess may be made as to whether the disease is active, healing, or healed—from such factors

as the child's age, duration of treatment or season—yet the precise stage of the disease can only be accurately determined by one or more X ray photographs or by chemical examination of the blood.

Prophylaxis.

In considering prophylaxis one must constantly bear in mind the cause of the disease, and its seasonal and age incidence. In London it is comparatively rare to find cases of active rickets in the late summer. The disease develops during the winter, probably reaches its maximum incidence in April, and the great majority of cases heal in the course of the summer, though they may relapse in the following winter. In artificially fed children not receiving specific antirachitic treatment, *the deciding factor in the development of rickets is usually the amount of exposure to light, and this is determined primarily by season and by the amount of time the infant spends out of doors.* Some breast-fed infants, who have little outdoor life, also develop rickets. It must be remembered that both human milk and cow's milk are relatively poor sources of vitamin D (the antirachitic vitamin) and throughout the winter every artificially fed infant and those breast-fed infants who may not get sufficient outdoor life daily should receive special preventive treatment. During the summer, if the child is out daily, special treatment is generally unnecessary. In the latitude of Toronto it has been found that in April and May the sun's rays have about eight times the antirachitic value that they have in December, January, and February, and it is from the autumn until April that specific prophylaxis is required as a routine measure.

The great majority of cases of rickets begin during the first year of life, probably most often between 4 and 10 months of age, and consequently it is for children during the first year that prophylaxis is particularly needed, though it is desirable to give such special treatment during the winter to "toddlers" also. Since premature babies are specially liable to rickets, which frequently develops before 5 months of age, special treatment should whenever possible be given to these infants from 1 month old whether they are breast-fed or bottle-fed, and usually in summer as well as in winter. The susceptibility to rickets of Italian and of negro babies in this country and the United States has often been noted, and specific treatment throughout the year is advisable for infants whose forbears lived in more sunny latitudes than our own.

General measures of prophylaxis are: (1) The procuring by all possible means of adequate outdoor life daily for infants throughout the year, and not only in fine weather; and the exposure of the child, so far as possible, to what sunlight is available. The mother should be persuaded to keep the child out of doors daily during the hours of light, and whenever possible with the hood of the perambulator down. (2) The encouragement of breast feeding. (3) The inclusion in the ordinary diet of infants and children not on the breast of an adequate amount for their age of those foodstuffs containing vitamin D—e.g., milk, eggs, and meat.

Specific treatment may be given either by supplying a substance rich in vitamin D by mouth—e.g., in the form of cod-liver oil—or by exposing the child to an artificial source of ultra-violet light and so bringing about the formation of vitamin D in the body. In either case the action of vitamin D appears to be identical, and to supply it by mouth is simpler and more economical in time and money. There are, of course, a very small proportion of infants—e.g., premature infants with poor digestive power—to whom it may be possible to give light therapy when cod-liver oil cannot be tolerated. The question arises whether artificial light therapy has any beneficial effect on the general health, other than that due to its power of forming vitamin D in the skin, which renders it more desirable than cod-liver oil as a routine prophylactic measure for infants. I have been unable to demonstrate any significant difference in rate of growth, hæmoglobin content of the blood, or liability to intercurrent illness between a group of infants getting light therapy as well as cod-liver oil and another group treated with cod-liver oil alone. I therefore consider that in the present state of our knowledge administration of cod-liver oil should be the routine method of prophylaxis. No method has been shown to prevent completely all manifestations of rickets in every case, but with proper cod-liver oil treatment, though slight craniotabes or costochondral enlargement may appear, changes of a grade radiographically recognisable are, in my experience, banished.

The antirachitic value of different specimens of cod-liver oil varies widely, but half a drachm of a 50 per cent. emulsion of most oils given three times daily is an adequate dose. To bottle-fed babies it is best given in the feed. Nearly all infants from the first weeks of life will tolerate it satisfactorily if the emulsion is started a few drops at a time, and increased to half a drachm three times daily within 4 to 14 days. Large doses may cause digestive disturbances and do not appear to have any compensating advantage. After infancy many children prefer the taste of cod-liver oil and malt, half a drachm of a good preparation three times daily being generally adequate for children over 12 months.

Certain concentrated forms of vitamin D are now on the market—both extracts of cod-liver oil, and also ergosterol activated by irradiation. It is probable that in the future some such preparation will have a wide field of usefulness, but the correct dosage and the keeping properties of these preparations need careful investigation before they are used on a wide scale. An effective curative dose of irradiated ergosterol mentioned in the last report of the Medical Research Council is apparently equivalent in vitamin D content to nearly half a litre of cod-liver oil daily. Surely we need to be very certain that over-dosage has no ill-effects on children before such preparations are widely used. Moreover, if the keeping property of some of these preparations proves to be poor, one may be quite unaware whether one is using an extremely potent or a totally ineffectual drug. It seems to me far preferable to use cod-liver oil of a good brand rather than proprietary preparations of unknown vitamin-D content. The use of ineffectual substitutes is certainly responsible for the development of many cases of rickets. Many manufacturers are now taking advantage of the facilities offered by the laboratories of the Pharmaceutical Society of Great Britain, where tests as to vitamin content can be performed, and it is possible that in the near future dosage will be on a proper quantitative basis.

Summary.

General prophylaxis is best attained by as much outdoor life as possible throughout the year.

Cod-liver oil emulsion, or cod-liver oil and malt for older children, is advocated for routine specific prophylaxis. They should be begun gradually. Proprietary preparations of unknown antirachitic value should be avoided.

Specific prophylactic treatment should be given to—

(*a*) All artificially fed infants throughout the winter, and throughout the year if sufficient outdoor life cannot be ensured.

(*b*) Breast-fed infants who are little out of doors.

(*c*) All premature infants throughout the year.

(*d*) All infants of dark-skinned races living in this country—throughout the year.

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Physician to the Queen's Hospital for Children.

MOORFIELDS EYE HOSPITAL.—The annual report of the Royal London Ophthalmic Hospital records the inauguration of a properly equipped ultra-violet ray department which has already "more than fulfilled expectations," 206 patients having made 3765 attendances in little more than ten months. The committee of management contemplate increasing the general ward accommodation from 120 to 130 beds, providing rooms for 21 nurses, and 15 private rooms for paying patients. These extensions will cost £28,000.

Special Articles.

THROUGH YUGOSLAVIA.

A VISIT was made during three strenuous weeks of April by a party of English men and women interested in Yugoslavia, its racial make-up, its chances of national development, its scenery and amenities, and, for the medical members of the party especially, the measures taken by the new kingdom to promote public health. A note upon this aspect of the tour will be of interest to the profession.

The Territory of the South Slavs.

Not everyone is quite clear as to the significance of the title Yugoslavia, a title which it may be said is itself a sort of compromise, offending no one, whereas the adoption, for the combination, of the name of any one of the constituent races might have been unfortunate. The title means the South Slavs, and their country consists of four principal divisions. First there are the Slovenes, the old Slav race, with its capital at Ljubljana, which has been for long in close association with the Austrian Empire, sharing its cultural development and its catholic religion. Secondly we have the Croats, representatives of the ancient and once powerful Slav kingdom whose crown was joined to that of Hungary in 1901; the capital is at Zagreb[1] (previously known as Agram) and the large Croat territory presents great differences of development in civilisation. Roughly speaking the north, having come strongly under Austrian influence, is comparatively advanced, while the south bears the character of a poor agricultural race, struggling in many places with unpromising soil, despite its tracts of fertility and still retaining many traces of Ottoman rule. East and south of Croatia we have Serbia, by far the largest Slav race contributing to the new amalgamation, a fact which has produced the difficulty in patriotic breasts of distinguishing between a pan-Slavia and a pan-Serbia. The Serbs as a whole are not so cultured as the Slovenes and northern Croats, but their development under the racial independence ensured to them by the establishment of the kingdom of Serbia with its capital at Belgrade has been freer. Bordered on the north by Austria and on the east by Roumania and Bulgaria, while faced on the west by the Adriatic shore of Italy, the geographical position of Serbia brought about its political circumstances and made of the Serbians a great race of soldiers. Below Serbia proper come the provinces of Bosnia and Herzegovina, where the Turk ruled for nearly five centuries until Austria intervened in her much criticised manner; here we have added to the complications produced by the existence of both the Roman Catholic and the Orthodox or Greek church a large proportion of Mahometans. Finally, along the south-west of the new kingdom runs the narrow strip of Dalmatia with its rocky coast and valuable harbours, below which lies little Montenegro separated from Greece by Albania.

For the ethnological student, therefore, a curious field of investigation is displayed. For the various Slav races, possessing and practising four religions—inasmuch as to the Catholic, the Orthodox, and the Mahometan, we must add in many districts a large proportion of Jews—inhabit territories which vary from the most fertile meadows to the most sterile rocks, and inherit ideals of political and social life which are allied on the one side to those of an ancient and cultivated European court and on the other side to the rudimentary schemes of existence satisfactory only to the most backward peoples.

Such in outline is the new kingdom which those who direct the fortunes of Yugoslavia are seeking to weld, as best they may, into a symmetrical and homogeneous entity, so that it may play its part as a nation among other nations. Neither history nor geography pretends to be other than the briefest summary, useful for understanding some of the main conditions of life in Yugoslavia as a whole. And once again medicine, preventive and curative, is proving itself the grand direction in which efforts can be made for the benefit of all, whatever their religion, their history, or their environment. The diseases will vary in such varying circumstances as those of Yugoslavia, but the desire to be protected or relieved is common, and indicates a prime direction in which the Government can advance the interest of its dependents.

FIG. 1.

The Institute of Hygiene and School of Sanitation, Zagreb.

Health Organisation in Yugoslavia.

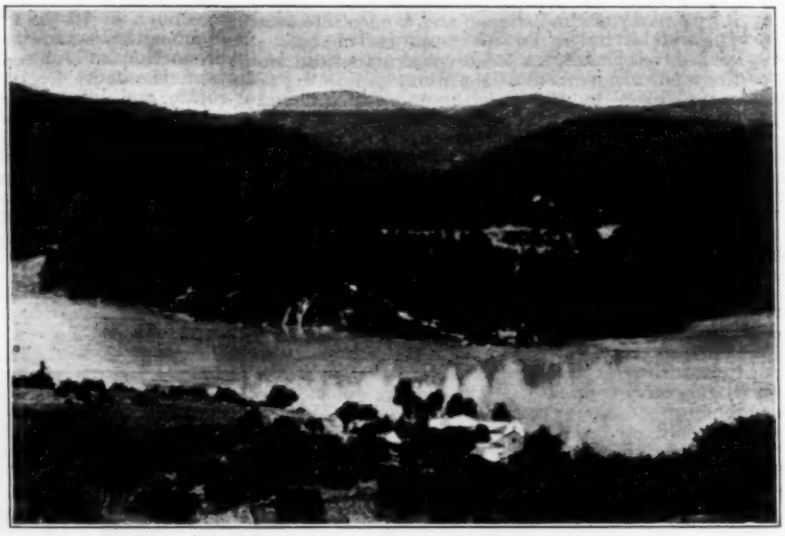
The organisation of the public health services in the Kingdom of the Serbs, Croats, and Slovenes has been well described in a publication of the League of Nations by Dr. A. Štampar, head of the Health Section of the Ministry of Public Health at Belgrade. The monograph was reviewed in our columns on its appearance alongside of the similar memoranda emanating from other States, so that it is possible that the general design in Yugoslavia is familiar to some of our readers. Since the kingdom was proclaimed—namely, at the end of 1918—a Ministry of Public Health has been created, and to this bureau there was soon added a Ministry having the care of social institutions. When two years later the real constitution of the country came into being, the Government was placed in the possession of legislation dealing with public health in a general manner, taking the supervision of labour and the improvement of general and social hygiene upon its own shoulders, and recognising special responsibilities in such vital matters as the assistance of motherhood and childhood, the material care of workers in illness or disablement, the provision of free medical attention for the poor, and the investigation of the causes of disease. All these duties are assumed, and are being carried out, by the Government with as much activity

[1] Cities in Yugoslavia often possess two names, that which they bore under Austro-Hungarian rule and the older name to which they desire to revert.

as possible in a land where practical measures must often be attended with difficulty, owing to deficient intercommunication, diversity of religions, and widespread illiteracy.

The duties of the Ministry of Public Health may be summarised as follows: To promote the regular increase of the population by encouraging parenthood and healthy childhood; to protect public health by the establishment of institutions for the treatment of disease and for the study of its prevention; to supervise the health of the nation by watching the incidence of disease; and to educate the people in health matters. As a first weapon in the contest, the kingdom possesses three faculties of medicine, one at Zagreb, one at Belgrade, and one at Ljubljana, the last being of recent formation. Through these faculties special health staffs can be trained and there are training colleges for nurses allied to them, while behind them are two great institutes for social medicine—one at Belgrade and one at Zagreb. The programme at each of these institutions is identical, and the English visitors were given the opportunity of thoroughly inspecting the institute at Zagreb.

FIG. 2.



The Plitvice Lakes and Falls.

The Institute of Hygiene and School of Sanitation at Zagreb. (Fig. 1.)

The School may be said to owe its origin to the veteran Prof. Milan Yovanovich Batut, who preached at ancient Agram the doctrines of public health throughout his long life, and who lived to see many of his ideals realised in the Zagreb Institute. The School was erected with the aid of the Rockefeller Foundation and is combined with the National Bureau of Hygiene at Zagreb into one Institution. Its functions, according to statutory regulations, are much what might be expected from the list of responsibilities, detailed above, which are undertaken by the Ministry of Health. The specified duties are as follows:—

(*a*) To help all persons wishing to get acquainted with problems of public health, in receiving a special education, by founding of libraries and museums, by arranging for lectures and suitable courses, by publishing books and pamphlets, and through any other suitable means

(*b*) To organise special courses for various professions where education and instruction may be imparted in all branches of public health.

(*c*) To provide for physicians, either upon their private request or by official duty, a correspondingly advanced training in hygiene, preventive medicine, sanitary administration, and legislation.

(*d*) To make larger classes of people acquainted with the science of health and its practical applications by demonstration of applied hygienic methods on different field works carried out by its technical staff.

(*e*) To help the State, the self-governing public bodies, and private institutions as well as individuals in their efforts to carry out all projects bearing upon the improvement of public health in a more reasonable and efficient way, by giving expert opinions and instructions, and by elaborating projects in all questions pertaining to public health.

FIG. 3.

The Panorama of Bled.

Further, the School issues certificates of attendance upon lectures given by approved teachers, being either professors at the Institute or the University, or coöpted experts; while the whole organisation is under the headship of one Director, appointed by Royal Decree, who has, however, the assistance of an Advisory Board appointed by the Minister of Public Health.

This Board consists of some 30 persons representing the views and claims not only of all Government educational and civic bodies, but also the Red Cross Association and the Yugoslav press; but as the Board holds only two ordinary meetings yearly it is clear that the Director can act in most cases independently. He has, however, to consult the Board in respect of his budget and his choice of staff, while he can submit any question to them, and they can at any time make suggestions to him as to policy. It is well that finance comes under the inspection of this widely representative body, for the sources of income of the Institution are many and consequently many are directly interested in learning how the funds are spent. Not only does the State make a grant, while public bodies and many associations and individuals subscribe, but the School itself makes collections for special purposes, and fees for tuition and admission to lectures and laboratories have to be accounted for, as well as the sales of laboratory production.

FIG. 4.

The Trappist Monastery at Banjaluka.

The Regulations of the Institute of Hygiene.

Regulations for the Institute are as carefully thought out as those for conducting the School, and were it not for the certainty that with developing activities they are sure to become modified we should get the impression that they are too detailed. In Great Britain things are done first, as they are needed, and rules are made later for carrying on and for future expansion—sometimes as they are needed and not infrequently when they are long overdue; so the succession to an elaborate organisation, derived from more advanced countries, presents a curious picture; we feel at the same time that, while the new civilisation is starting with a great number of problems already solved, it is impossible not to apprehend that there is a risk of superficiality, the results of work done elsewhere being accepted without any period of personal trial. In Yugoslavia, as regards preventive medicine, this risk is being provided against by the intention to carry on fundamental work through their own men, but with close attention, especially by communication with the League of Nations, to what is being done in other countries.

The Institute of Hygiene with the School of Public Health will have the following departments eventually, and much of the work is already started: (1) administrative; (2) bacteriological-epidemiological; (3) for the preparation of biological products; (4) chemical, with the duty of controlling foodstuffs; (5) an antirabies bureau; (6) a bureau for the preparation of small-pox vaccine; (7) a hospital for contagious diseases; (8) a department of parasitology; (9) a section of rural sanitation and sanitary engineering; and lastly (10) a department of social medicine where hygienic propaganda are considered and the study is undertaken of national pathology and vital statistics.

FIG. 5.

The Market, Serajevo.

The work falling under the various sections can be coördinated by the central character of the Institute, and, where it is proceeding, is following the pattern of similar work done in this country, with the full advantages of an excellent equipment. Special attention may be called to the work in connexion with rabies, for the work proceeding in this department implies a rising prevalence of the disease. The department appeared to be busy in diagnosing the presence of rabies in suspected animals, in arranging for the immunising on the spot of persons already bitten, and in preparing and distributing the vaccine. The Fourth Epidemiological Report of the Health Section of the League of Nations gives the figures for human rabies in Yugoslavia in 1925 and 1926 as follows: 1925, 14 cases with 14 deaths; and 1926 28 cases with 25 deaths. These are the latest figures published, and at the Institute there seemed to be ground for believing that the rise in the disease was being maintained.

The evolution of spas and health resorts also comes

under the notice of the Institute. As yet not many centres have been developed and the possibilities of this sort are only now receiving attention. The visitors from this land were able to see the careful manner in which the medicinal qualities of the natural waters of Yugoslavia are being investigated as an analysis was being conducted of the mineral waters of Liphik, in a Slavonian valley, whose make-up promises to be of considerable value in rheumatic disorders. The analysis was being undertaken by Dr. Stanko Miholic, a Zagreb student, who has since come to Cambridge to continue his studies at the Sir William Dunn Institute. For the most part the therapeutic qualities of the waters of the country remain as yet undeveloped, but balneology is represented by beautiful health resorts such as Plitvice (Fig. 2) and Bled (Fig. 3).

The Incidence of Disease in Yugoslavia.

The Kingdom of the Serbs, Croats, and Slovenes is subject to the six great infectious diseases which are found throughout Europe—namely, small-pox, typhoid, typhus, dysentery, scarlet fever, and diphtheria; here the figures available for the six years 1919–24 inclusive show that already immense improvement has followed under the efforts to meet the circumstances in a scientific manner, such as have been detailed. How thorough the attempt at notification of disease is may be judged by the fact that it is a public duty to send a telegram direct to the Ministry of Health when the presence of a serious epidemic has been verified by diagnosis supported by laboratory tests. All these six diseases must be notified to the health authorities at once, who send their reports to the Ministry on the 7th, 14th, 21st, and *last* day of every month, the fixed dates facilitating comparisons between various months.

Infectious Diseases in the Kingdom of the Serbs, Croats, and Slovenes.

Number of inhabitants 12,017,323.

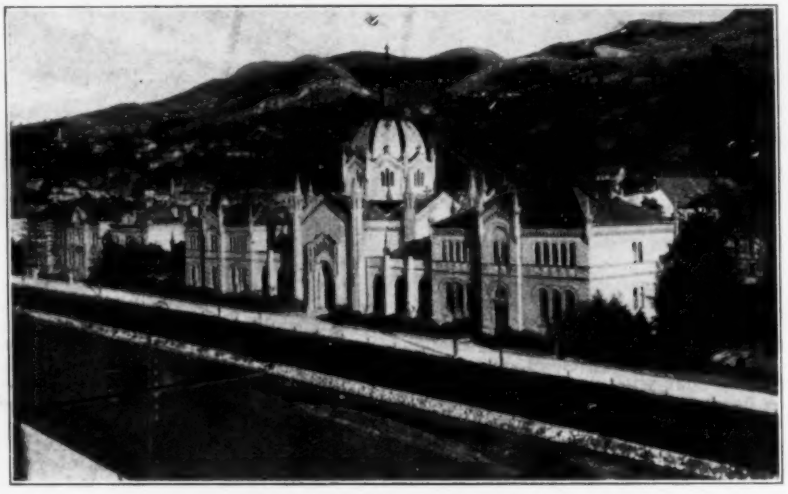
Diseases.	1919.					1924.				
	Morbidity.		Mortality.			Morbidity.		Mortality.		
	A.F.	Per 100,000.	A.F.	Per 100,000.	Case mortality (per cent.).	A.F.	Per 100,000.	A.F.	Per 100,000.	Case mortality (per cent.).
Small-pox	5,278	43·4	1100	9·2	20·8	308	2·6	62	0·51	20·1
Typhoid fever	3,969	33·0	579	4·8	14·6	1051	8·8	153	1·3	14·6
Typhus ..	12,198	101·4	1499	12·5	12·3	232	1·9	14	0·12	6·8
Dysentery	17,532	141·5	3100	73·5	17·6	209	1·7	18	0·15	8·6
Scarlet fever	1,521	12·7	224	1·9	14·7	4478	37·3	908	7·6	20·3
Diphtheria	1,406	11·7	126	1·1	9·0	700	5·8	118	0·98	16·9

A.F. = Absolute figures.

Estimating the number of inhabitants at 12 million, the interesting comparison comes out that in 1919 there were over 5000 cases of small-pox and in 1923 there were 1000, and in 1919 12,000 cases of typhus, while in 1923 there were only 1000, the mortality per 100,000 falling in the first case from 9·15 to 0·51, and in the second case from 12·47 to 0·12. (See annexed table.

A large proportion of the rest of the sickness of the country is comprised as might be expected in the sufferers from malaria, tuberculosis, and venereal disease, and vigorous campaigns have been initiated in each case.

FIG. 6.



Protestanska Crkva, Serajevo.

Malaria.—Yugoslavia is one of the most malarial countries in Europe. It is possible that in certain parts of the kingdom, especially in the south, from 8 to 9 per cent. of the inhabitants are actually suffering, and the number of cases and the material loss entailed have made the check of malaria one of the most anxious problems before the Government. Austria had taken some steps to check malaria before the war, especially in Dalmatia, and during the war antimalarial measures were taken in the French and British lines which have borne fruit since. In 1923 an antimalarial campaign was undertaken at various epidemiological and bacteriological stations, of which the chief one is situated at Trogir, on the Dalmatian coast and famous for its magnificent church. At these stations attempts have been made to collect in an orderly manner material information as to the distribution of malaria, while to a new institute at Skoplje will be left the central organisation of the whole work. Eventually 50 auxiliary stations will be engaged on a simultaneous campaign under the direction of specialists, the laboratory investigations necessitated being undertaken at Belgrade.

Tuberculosis.—The campaign against tuberculosis is not so far advanced, nor is the disease so rife, though its incidence amongst the Mussulman population is heavy owing to the confinement of the women and children to the harems. The considerable Jew population appears to be the least vulnerable in this respect. As might be expected, southern Serbia and Montenegro suffer principally, while Slovenia and Dalmatia, which is comprised in a western sea-coast, are the most free. A sum approximate to £75,000 is being spent on the erection of anti-tuberculous dispensaries, of which 30 exist, while there are upwards of 1000 beds for tuberculous subjects scattered in various sanatoriums and isolation hospitals.

Venereal Disease.—Antivenereal dispensaries have been established by the Government where cases of venereal disease which have been sought out are

treated gratuitously, while reliance is here much put upon the distribution of pamphlets and explanatory notices. But the illiteracy of the countryside has to be combated, and flamboyant use is being made of the theatre, the cinema, the museums, and exhibitions, while illustrated posters give lessons of warning of an unmistakable sort.

The Medley of Yugoslavia.

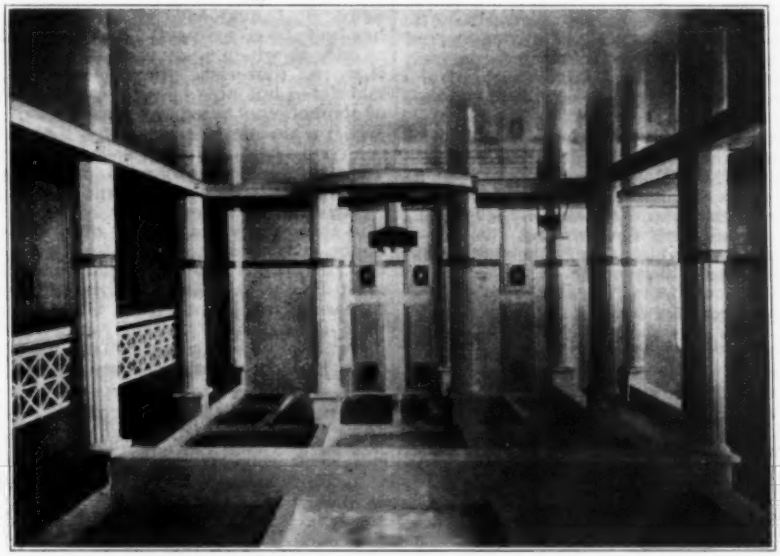
The thing that most strikes the tourist in Yugoslavia, whether medical man or no, is the extraordinary and intimate mixture of the new with the old. In many districts where the natural conditions make it possible agriculture is in an advanced state, in others it is of the most elementary sort. In many places the resources of advanced civilisation—hotels, trams, cinemas, good lighting, and sewerage—leave nothing to be desired; in others there can as yet be little but the most rudimentary attempts in any direction.

In the cities of Banjaluka and Serajevo, the capital of Bosnia, large streets, handsome shops, and fine approaches are intimately dove-tailed into rambling oriental bazaars, and costumes reminiscent of everything from the pavements of Piccadilly to the Turkish Steppes intermingle, though everywhere evidence is forthcoming that progress is being made towards higher standards; in exteriors the young women lead the way, for throughout Yugoslavia, when we get above the peasant class, the cream legs appear, the cropped heads, and trim clothes of the modern girl.

Banjaluka is the site of a well-known Trappist monastery (Fig. 4) which the visitors were invited to inspect as far as the outbuildings are concerned and the industries proceeding therein, but the monastic establishment was not shown nor were many monks in evidence. The Order is strictly one of silence, but the conducting monk took full and interesting advantage of the necessity of talking. He described the rise of the Trappists and their elaborate organisation to secure proper rules and adequate government; he ridiculed the popular stories as to their conduct of life and especially their method of burial; and he explained the considerable absence of monks from the actual fields of manual labour by pointing out that, reversing the rules of St. Benedict, the Trappists were only employed in manual labour for three and a half hours each day, but in prayer for seven hours. The outstanding features of the large buildings were the new church and the old monastery, which is now the most stately cowshed imaginable. The social advantages derived by Banjaluka from the monastery are two: first, within its walls a large orphanage is supported, and secondly the monastery has coördinated a valuable market for the local cheese, which is produced by dairies all over the surrounding area. The unspeakable road leading to the monastery communicates directly with a fine modern city thoroughfare which later dies away into a typical eastern market.

In Serajevo the blend of old with new, and east with west, was even more marked. The visitors were specially permitted to inspect one of the most famous mosques in Europe, while some of them took advantage of having a Turkish bath in a city which for generations suffered Turkish rule—an experience which proved that this form of balneology is very well conducted in London. Serajevo possesses fine streets, shops and bridges, and all the provisions for public health are in evidence, but the delightful market in its centre is an intricate network of alleys. (See Fig. 5.)

FIG. 7.



The Bath in the Toplice Hotel, Bled.

The same medley was noticeable at Mostar, the capital of Herzegovina, where the Roman foundations exist of the famous bridge which gave its name to the place. Here the bazaar quarter, running down numberless little streets alongside the river, and nestling under the arch of the bridge, conveyed the exact impression which many derive from pictures of Eastern commercial quarters; but a few yards from the jumble of booths and outhouses, comprising the bazaar, a broad modern bridge has been constructed, and a hotel erected that would have done credit to any capital in Europe. This was being run on modern lines for a crowd of guests, and as the old hostelry, adjoining one of the infrequent railway stations of the country, was also functioning briskly, an opportunity of drawing comparisons was offered; the new hotel may reproduce modern vulgarities in striving after better things, but the extent to which the old one had fallen behind what to-day the European traveller expects would be difficult to describe.

The Adriatic Coast.

From Mostar the party proceeded west, reaching the Adriatic coast at the delightful old town of Ragusa (Dubrovnick). Here all traces of oriental occupation had ceased, the old parts of the city being represented by the mediæval architecture of Venice as a ruling power in the world, while the more modern parts and the environment make up a holiday resort, where bathing in the sea and the sun can be enjoyed in lovely surroundings. Proceeding by boat from Ragusa through the many islands to Sparlato (Split) and by car to Sebenico (Sebenik), there was found at the latter city a perfectly modern hospital. This was built by the Austrians in 1883, but large additions have been made to it on a pavilion plan, and it now provides 500 beds, divided into medical and surgical wards, an

infectious block, and special clinics for dermatological and venereal cases, ophthalmic and neurological cases, and childbirth and maternity. Each of these divisions of the hospital is under a chief, while the institution is conducted by 11 medical men, with five lay administrators and a staff of 112 persons. The Mayor of Sebenico proved an enthusiastic cicerone both in the hospital and in his beautiful city—indeed, it is hard to say whether he was more enthusiastic over the modern cleanliness of the hospital or the ancient dignity of his church, of both which he has a right to be proud.

The last lap of the course was now reached and of the other places visited only two presented medical features, and each because of the opportunities offered for enjoyable holidays or convalescence. The first of these, Plitvice, situated in North Croatia, is the centre of a chain of 16 lakes at an altitude of over 2000 ft. (Fig. 2), framed in pine woods and inter-connected by waterfalls. A well-managed hotel stands on high ground facing one of the larger lakes, and all the country around offers beautiful air and scenery and pleasant walks. From Plitvice the journey to Bled, which is practically on the Austrian frontier, lies through the fertile and well-cultivated land of the Slovenes Bled is a delightful little settlement (Fig. 3) on the shores of a transparent blue lake; one hill is crowned by a castle and another by a church, the mountains abound with flowers, and there is a wide choice of hotels, of which the Toplice offers the agreeable provisions of a fine plunge bath (Fig. 7). Bled is the holiday resort of the fashionable of Yugoslavia, King Alexander setting the example.

Yugoslavia in the Making.

These brief notes, it is hoped, will show how vigorously modern civilised amenities are in the making in Yugoslavia; while for medical men the gratifying view is obtained that medicine is proving the great coördinating power in the reforms that are taking place on all sides.

MEDICINE AND THE LAW.

Criminal Lunacy Statistics.

IN the recently issued Criminal Statistics for the year 1926 the figures relating to criminal lunatics are interesting. The total of criminal lunatics received into asylums during that year was 147; this total can be resolved into two classes. In the one class are the "King's Pleasure lunatics," who have been found insane by a jury, either on arraignment or by the peculiar verdict of "guilty but insane." In the other class are the "Secretary of State's lunatics," who have been certified insane either before trial or after conviction. No fewer than 91 persons were certified insane after conviction while serving sentences in prison. So large a figure inevitably raises a doubt whether the law has not held many of them responsible for crime when, in fact, they were irresponsible through mental disease. It hardly seems satisfactory that out of 147 persons admitted as criminal lunatics during the year, hardly more than one-third should have been recognised as insane by a judge and jury. In the previous year, it may be mentioned, more than half the total admissions to criminal lunatic asylums were authorised by certificates given after the lunatic had been convicted and while he was serving his sentence in prison. Is there not a strong inference that these cases of insanity should have been detected earlier before the crime was committed? Can we afford to be dilatory in certification? Even in human life alone the criminal lunatic is costly to the country; out of 874 criminal lunatics in detention at the end of 1926 no fewer than 399 had been charged with murder. The danger and expense of the criminal lunatic to the country might be diminished if public opinion would support the medical profession when called upon to give a certificate under the Lunacy Act. So far, however, from receiving public support, the medical practitioner is constantly being reminded of his personal liability to heavy damages if he undertakes the unwelcome duties which lunacy legislation has imposed upon him.

Drunk or Not Drunk.

The Criminal Statistics show a steady fall in the number of non-indictable offences dealt with by courts of summary jurisdiction in respect of the intoxicating liquor laws. On the other hand, there is, of course, a steady rise in the number of offences against the Highway Acts in relation to the use of motor-cars. A generation ago the quinquennial average of offences by motorists was less than 2500; in 1926 the figure was 163,301. In a considerable proportion of these cases the accused is charged with being drunk while in charge of a motor-car, an issue upon which medical evidence is frequently adduced, though no adequate test of drunkenness has yet been evolved. A case was reported last month in which a divisional surgeon gave evidence that a motorist, when examined, was slightly inebriated but able to walk quite straight. He smelt of alcohol, continued the witness, but was extremely civil in his manner. "I say," he added, "that in the condition in which I saw him he was not able to drive a car safely because he did not know what he was doing . . . he was drunk in law; he was not fit to drive a car when I saw him; he was muddled." The stipendiary magistrate observed that he had no doubt in his own mind that the man was drunk but that, in view of the divisional surgeon's evidence, he must dismiss the charge of drunkenness. Presumably a man is not drunk from the magisterial point of view if he is only "slightly inebriated" and is able to walk quite straight. The witness's expression that the motorist was "drunk in law" was evidently unacceptable to the law.

Non-disclosure of Insurance to Juries.

A curious point of forensic etiquette was settled last week in connexion with the trial of claims for damages arising out of street accidents. It is an unwritten rule that counsel for the plaintiff should not mention to the jury the fact that the defendant was insured. The principle underlying this rule is that, if a jury knows that a rich insurance company stands behind the defendant, it will be more ready to decide that the defendant was negligent and to award substantial damages against him. There was no very strong authority in favour of this rule in the law reports until the recent case in which a plaintiff appealed against an order of his honour Judge Cluer discharging a jury in the Shoreditch County Court and directing that a case be tried before a fresh jury on the ground that counsel for the plaintiff had intimated to the jury that the defendant was insured. On the appeal being heard in the Divisional Court there seemed to be some doubt as to what counsel had actually said; but Mr. Justice Salter's judgment made it clear that the rule of non-disclosure is well founded and should be enforced by a judge at trial. On the other hand, Mr. Justice Talbot, while concurring in this judgment, suggested that the rule perhaps no longer worked for justice. No jury nowadays can help knowing that in the majority of cases of motor accidents the motorist is insured. Or, perhaps, added the judge, if the jury does not know that a defendant is insured, it may refrain from awarding heavy damages where such an award would be thoroughly justified. Mr. Justice Talbot suggested that it would be better to disclose frankly to the jury the fact of insurance or non-insurance, the judge being careful to give an express warning to the jury not to allow the fact of insurance to influence the verdict.

This view is fortified by some recent remarks of Lord Justice Scrutton on the changing temper of juries. Once, he observed, when motor-cars were rare, no jury would find in favour of a motorist; but now probably half the jurors own motor-cars themselves and can thus be relied upon to deal fairly with motoring cases. In fact, he added, it is difficult to get a criminal conviction of a motorist before a jury.

Correspondence.

'Audi alteram partem."

MULTIPLE DENTAL EXTRACTIONS.

To the Editor of THE LANCET.

SIR,—In his interesting address, which you published recently, Dr. Harvey Hilliard assumes that major dental operations can always be safely carried out at one sitting. That is not my experience, nor, I believe, that of dental surgeons in general. Each case should be treated on its merits with regard to the amount of sepsis present and the state of the bodily resistance. When sepsis is severe and resistance low it seems to me wrong to extract a large number of teeth at one time, for in my experience the amount of toxic absorption is directly proportional to the number of teeth removed and to the size of the resulting wound. The sockets are already infected and the teeth that are left do not play much part in absorption. In any case it is inaccurate to speak of clearing out all septic matter from the mouth at one operation; the bone and soft tissues are largely infected and extraction of teeth does no more than remove the cause of the infection, leaving the bodily powers to deal with the deeper sepsis—a process which takes time. So-called septic sockets—i.e., sockets from which the blood-clot has dissolved after extraction—are, I believe, nearly always associated with undue laceration of the tissues and injury to the bone due to difficult or inexpert extractions.

Personally I have found the best procedure in cases where general toxic symptoms are present is to remove the back teeth under nitrous oxide anæsthesia in two operations with an interval of about a week between, and then to allow a further fortnight for the gums to heal and the patient to deal with the absorption of toxins before the remaining front teeth are removed. In this way I find that the patient suffers little if at all from general upset. I have a case in mind of a lady, 40 years of age, who had been three months in bed with symptoms of mucous colitis associated with severe anæmia suggesting sprue. Her blood count was R.B.C. 3·2 million, Hb. 60 per cent. and still falling; weight had dropped from her normal 10 st. to 6 st. 6 lb. She had lost her 12 front teeth and the condition of the remainder made it desirable to remove them all. Four were removed under gas with little general reaction, a few days later six more when a severe exacerbation of colitis occurred and the patient became really very ill. Finally, after a fortnight, the remaining teeth were extracted without mishap. She then made an uninterrupted recovery, six months later her blood count being R.B.C. 5 millions, Hb. 100 per cent., and her weight 9½ st. Had the extractions all been carried out at one sitting my impression is that she would have died.

I feel confident that the bad results to which Dr. Hilliard refers as arising when teeth are removed in successive stages are the result of not leaving sufficient time between the stages. Three stages are in most cases sufficient.—I am, Sir, yours faithfully,

A. H. JOHNSON, L.D.S. R.C.S.

London, April 27th, 1928.

THE TREATMENT OF ULCERATIVE COLITIS.

To the Editor of THE LANCET.

SIR,—On Dec. 4th, 1926, you published the address with which I opened a discussion on Colitis at the Medical Section of the Royal Society of Medicine. In it I described the excellent results which follow the treatment of ulcerative colitis by the intravenous injection of antidysenteric serum. I was surprised therefore to read in your leading article of April 28th that the results of serotherapy "were disappointing and its use has now been largely abandoned." The need for drawing attention to the treatment can be gathered from the uniformly pessimistic views of all the speakers in the discussion on ulcerative colitis at the Harveian Society, reported in your last issue. Sir William Willcox believed that many cases are hopeless from the first, and Dr. Bellingham Smith recorded a mortality of 24 among 46 cases. Mr. Lionel Norbury stated that several years of regular irrigation through an appendicostomy are required to effect a cure, and Dr. French advised colectomy as the only treatment he had known which ever gave good results.

In 1920, in the belief that the disease was really an aberrant form of bacillary dysentery, I tried the effect of intravenous injection of large doses of polyvalent antidysenteric serum. In the first case the result was little short of miraculous. A young man, who was almost moribund after being very ill for over a year, and in whom no improvement had followed an appendicostomy, recovered completely in a fortnight; five days after the first injection the sigmoidoscope showed that the innumerable ulcers seen a few days before had vanished, and nine days later the appearance of the mucous membrane was absolutely normal. In the eight years which have elapsed he has had one slight recurrence, which rapidly responded to serum treatment, and he is now perfectly fit. Since 1920 I have used antidysenteric serum as an essential part of the treatment in every severe case, generally with excellent results. I realise that the treatment may really be non-specific and nothing more than a form of protein shock, although in one case it proved very effective after a series of injections of ordinary horse serum had failed to produce improvement. The dosage I now use is 40, 60, 80, and 100 c.cm., injected intravenously on successive days, followed by 100 c.cm. for a few additional days. The reaction is occasionally somewhat alarming, but it is hardly ever dangerous.

The only fatal case I have had among my 25 hospital and private patients since I first tried the serum treatment was a woman, who died of bronchopneumonia when she was improving as a result of an appendicostomy, performed on my advice a few weeks earlier. In three other cases an appendicostomy had been performed, but without obvious benefit; it was allowed to close when they came under my care, and the medical treatment was substituted with ultimate success.—I am, Sir, yours faithfully,

ARTHUR F. HURST.

New Lodge Clinic, Windsor Forest, April 30th, 1928.

To the Editor of THE LANCET.

SIR,—In the recent discussion on ulcerative colitis at the Harveian Society, as reported in your last issue, a note of pessimism in regard to treatment was struck which cannot be allowed to stand without comment. One speaker states that "while the symptoms might improve considerably, the sigmoidoscope usually showed that the condition was little altered. Ulcerative colitis was one of the most serious conditions of intestinal disorder and one of the most difficult to cure, *requiring several years of regular irrigation through an appendicostomy.*" Another speaker said that "*the condition was practically incurable and could only be relieved.* Of his 46 cases 24 had died" (italics mine). Serum treatment received no consideration, and the opener of the discussion said that it was not indicated in the ordinary chronic colitis of civilian practice. This so far conflicts with experience at Guy's Hospital that I feel it would be wrong not to join issue with the speakers quoted.

In 1921, Dr. A. F. Hurst first described[1] the successful employment of polyvalent antidysentery serum in chronic ulcerative colitis. Since then the method has been employed as a routine in his wards and was also employed in Dr. John Fawcett's wards. As assistant physician successively to Dr. Fawcett and Dr. Hurst, I have had opportunities of seeing their cases as well as my own. We all formed the opinion that the prospects of healing in ulcerative colitis were greatly improved, and that the period of

[1] Guy's Hospital Reports, 1921, lxx., 26.

hospitalisation was shortened and the mortality reduced by serum treatment. Cases, both early and late, and incidentally some with severe anæmia and wasting, have, after showing no response to other methods improved steadily after a full course of serum. Treatment has always been controlled by sigmoidoscopy, and I have personally witnessed complete healing of ulcers, together with clinical recovery, disappearance of blood from the stools, and reappearance of formed stools. I have had three cases under my care in Guy's in the last three months, two of these (cases of moderate severity) have been discharged convalescent after treatment lasting a few weeks only. The third, one of the worst cases I have seen, with an extremely hæmorrhagic type of lesion, is now, after six weeks, beginning to pass formed stools and shows commencing healing of her lesions. In 1925 a nurse with a three years' history of ulcerative colitis, complicated by thrombosis in both legs, was admitted to Guy's under my care in poor condition, with typical symptoms and sigmoidoscopic appearances. She had been given a small and quite inadequate dose of serum some months before her admission, and for this reason treatment had to be initiated with caution. After a full course she improved steadily. She weighed 9 st. 5 lb. on leaving the ward in November, 1925. In June, 1926, I saw her again and she was fit and well, weighed 11 st., and was passing two or three formed actions daily with a very occasional streak of blood. In March, 1928, I saw her again on account of a small ulcer on the leg, consequent upon the thrombosis. She remains perfectly well in herself and has no bowel symptoms.

I have had no occasion, in my own small series, to resort to surgical measures. I have, of course, seen cases in which the treatment was unavailing and when stricture or polyposis have developed the time for such treatment is clearly past. I can recollect only one case of my own in which improvement did not follow the treatment. In this case my house physician, through a misunderstanding, gave antistreptococcal instead of antidysenteric serum. It would seem either that the experience at Guy's is different from experience elsewhere, or that others have not given the method an adequate trial. A fuller discussion of the treatment, which must include large doses given by the intravenous route, will be found in the Proceedings of the Royal Society of Medicine, 1927 (No. 4), p. 367.

I am, Sir, yours faithfully,

Wimpole-street, W., April 30th, 1928. J. A. RYLE.

HAS THE CAMPAIGN AGAINST VENEREAL DISEASE BEEN A FAILURE?

To the Editor of THE LANCET.

SIR,—Mr. Johnston Abraham blesses the Edinburgh Corporation Bill, apparently because he seems to think that the compulsory measures which it desired to enforce would help the campaign against venereal disease which we all have so much at heart.

I have read his letter carefully, as his authority to speak on such a subject is unquestioned. He points out, I think with perfect justification, that treatment of syphilis under the voluntary system has been eminently successful. He thinks that the same statement cannot be made about gonorrhœa, and he points out a distinction between these two diseases—namely, that out-patient treatment is, on the whole, adequate for syphilis, but is inadequate for gonorrhœa. I think, in assuming that the conditions for treatment for gonorrhœa would be bettered if the Edinburgh Corporation had been able to secure the passage of the Bill, he is entirely mistaken. Perhaps he is not aware that before the second reading the Corporation dropped their clause asking for compulsory detention, and with that surely disappears Mr. Abraham's chief reason for support of the Bill. It is true, as I said in my speech upon the second reading, that the Corporation appear to think that they can, in fact, secure some form of detention under the Public Health Acts already on the Statute Book without fresh legislation for which they were at first pressing. This is a legal question upon which an eminent K.C. in the House of Commons has given me his opinion that these Acts do not, in fact, carry that sanction. Whether this be so or not I do not know, but I would point out that without hospital provision upon the large scale for detention, and for the long periods which the circumstances of the disease require, detention would be impossible to enforce. Surely it would be more sensible to provide the accommodation required for the proper in-patient treatment for gonorrhœa as advocated by Mr. Abraham, and to rely upon the voluntary system for persuading the patients to undergo the treatment. I do not think there would be any difficulty in achieving this purpose if the accommodation were there; it is the absence of accommodation, and not the lack of compulsion, that militates against the in-patient treatment of gonorrhœa upon the scale required by Mr. Abraham; and compulsion does not seem to me to be any necessary part of his proposition.

To ask for compulsion restricted to one town is surely a contradiction in terms. It could not, in fact, be compulsory under those circumstances. Compulsion must either be universal or must fail in its effect. An experiment could not be restricted to Edinburgh. Mr. Abraham says that medical opinion "all over Scotland" was in favour of the Bill. I should like to know upon what evidence he makes this statement. The Corporation, in presenting their case, could find no better medical support than the vote given at one meeting of the Edinburgh Division of the British Medical Association held a few weeks ago. The meeting was called by the promoters of the Bill; whipping was freely indulged in. I am informed that about 60 members attended the meeting, and inasmuch as there are some thousand persons (not 1500, as I am reported to have said) practising medicine in Edinburgh, that vote, which was not a unanimous but a majority vote, cannot be claimed as representing medical opinion, even in Edinburgh. I am not aware that any other steps have been taken to ascertain the opinions of the medical profession in Scotland, and should be glad to have the information.

I am, Sir, yours faithfully,

House of Commons, April 30th. E. GRAHAM LITTLE.

To the Editor of THE LANCET.

SIR,—It is more than a little interesting to know from Mr. Peart's letter in your last issue that in the silver preparations and in potassium permanganate we have remedies as effective in the treatment of gonorrhœa as is arsenobenzol in syphilis. Most venereologists have used, and still use, these preparations, but I know of no one who has found, by practical experience, that they are comparable in any way to arsenobenzol in syphilis. But then most of us use them by irrigation per urethram, which method, Mr. Peart informs us, is a faulty method of administration.

Mr. Peart says: "I have found injection of the vas absolutely reliable in dealing with every stage of the disease." It is very difficult to grasp this statement, which can only mean that Mr. Peart performs the operation of vasotomy on all cases of male gonorrhœa—acute, chronic, anterior, posterior—and its complications. The generally accepted view is that vasotomy is indicated in: (1) gonorrhœal arthritis, where it is found that the seminal vesicles are infected (as occurs in the majority of cases) and where it has been impossible to empty the vesicles by massage; (2) spermatocystitis of a chronic character; (3) azoöspermia, secondary to spermatocystitis. The operation, when done through an incision, is a comparatively simple one, if one follows the technique of Belfield [1] or of Kidd,[2] but it is not so simple that it is applicable to patients suffering from conditions

[1] Belfield, W. T.: Jour. Amer. Med. Assoc., April 22nd, 1905, and Dec. 25th, 1909.
[2] Kidd, F.: THE LANCET, 1923, ii., 213.

other than those enumerated. My own practice after vasotomy and the injection of (say) collargol, is to keep the patient in bed for four days.

If Mr. Peart actually, as his letter suggests, injects, through the vas, preparations of silver and potassium permanganate in *every* stage of the disease, it would be instructive to have a description of his routine and his technique for a case of acute gonococcal anterior urethritis. Every venereologist would be glad to compare the results of such treatment with irrigation.—I am, Sir, yours faithfully,

E. TYTLER BURKE,
V.D. Medical Officer for the City of Salford.

April 28th, 1928.

To the Editor of THE LANCET.

SIR,—We do not wish to raise any word in opposition to Mr. Johnston Abraham's plea for more beds for the treatment of gonorrhœa in women or to controvert his general statement on the deplorable lack of results which have followed the introduction of the scheme put forward by the Ministry of Health in 1917. When, however, he says that gonorrhœa in the female is a most intractable disease and, as far as out-patient treatment is concerned, cure is exceedingly difficult, we desire to point out that, though this may be true of the methods commonly in vogue, it is most certainly not true of the method of treatment by diathermy introduced by us at St. Bartholomew's Hospital and practised there since 1919.

A preliminary communication on the subject was made to the Section of Electro-Therapeutics of the Royal Society of Medicine in January, 1922, in which we were able to state that 12 cases which had come with a diagnosis of gonorrhœa, bacteriologically confirmed, had been treated, and that in all but one of these, after three to five applications of diathermy, there was no clinical or bacteriological evidence of infection, whilst subsequent observation over periods ranging from two months to one year showed that the infection had been definitely removed. At the British Medical Association meeting held at Portsmouth in the following year it was reported that six additional cases had been treated, and that of the total number of 18 all but one had finally been found free from infection.

Since these communications we have continued to treat gonorrhœa in women by diathermy with satisfactory results. The success is as invariable as the first series of cases led to us suppose, but probably owing to a different class of case coming under treatment, it has been realised that the number of applications required is sometimes more than the three to five given in the first series, some requiring as many as 12. The treatments are given twice weekly. In about ten days, therefore, many cases are rendered free from infection, whilst some take as long as six weeks. The potency of diathermy is further shown by the invariable disappearance of metastatic infection and the absence of communication of infection on marriage or on resumption of marital relationship. Full descriptions of the method of application have been given in a book [1] published by us on the subject and in papers read at the Royal Society of Medicine [2] and articles in various journals. The cases, with few exceptions, have been treated as out-patients, and there can be no doubt that the method is suitable for use under such conditions. It must be strongly emphasised, however, that the treatment of the pelvic organs by diathermy cannot be properly conducted by nurses, orderlies, or other attendants who are not thoroughly acquainted with pelvic anatomy and the necessary manipulations and passage of electrodes. Proper skill and knowledge must be exercised to ensure success and to prevent injury to the patient. In our hands an accident or untoward event has never occurred.

This letter has not been written for the purpose of urging that treatment of gonococcal infection by diathermy should be adopted at the special treatment centres. The method may be too costly, or unsuitable for some other reason. This is not specially our concern. Our object is to point out that there is a means of bringing gonococcal infection in women to an end in a short space of time, and almost invariably, and that the method is suitable for out-patient treatment. The results we have obtained have been confirmed by workers scattered throughout this country and in other parts of the world.

We are, Sir, yours faithfully,

E. P. CUMBERBATCH.
C. A. ROBINSON.

Upper Wimpole-street, W., April 27th, 1928.

[1] Treatment of Gonococcal Infection by Diathermy. Wm. Heinemann. 1925.
[2] Proc. Roy. Soc. Med., Jan. 16th, 1925.

SPLENOMEGALY ASSOCIATED WITH ASPERGILLOSIS.

To the Editor of THE LANCET.

SIR,—The annotation under this heading in THE LANCET for April 14th (p. 767) will perhaps serve to direct attention to the fact that in France, for a year or two past, it has come to be generally believed that some cases hitherto regarded as cases of Banti's disease are associated with the presence in the spleen of mycelial structures now commonly known as *Aspergillus nidulans*. Those who believe that this mycelium is causal to the symptoms speak of the conditions as constituting *la mycose splénique de Nanta*, or Nanta's mycosis of the spleen, in honour of Nanta and the Algerian school of medicine. Others, like Oberling, question the causal importance of the organism, in at any rate the sense of Nanta, whilst a third group frankly "does not believe" in it as causal at all. That such a mycelium does occur in certain cases appears, however, to be the fact.

We need not therefore forget that the presence of a mycelium in the spleens of certain cases of splenomegaly and Banti's disease was demonstrated by Dr. A. G. Gibson, of Oxford, in a paper read before the Royal Society of Medicine.[1] Oddly enough, Léon-Kindberg, in his article [2] published in 1927 makes mention of Dr. Gibson's later work,[3] declaring him "nettement partisan de l'origine infectieuse" of Banti's disease, then going on to make mention of the first reports by Nanta, Pinoy, and Gruny, ascribing causality to a streptobacillus. This work of these observers seems to have been abandoned by them in favour of that later which, alleging the presence of the *Aspergillus nidulans* or *nantæ*, does not seem to do more than repeat what Gibson had already shown. And a rather bitter attack by Langeron,[4] upon the work of Nanta, seems to have been made in ignorance of the importance of the work already done in England.

One thing is clear: the appearances first demonstrated at the Royal Society of Medicine in 1913 are mycelial and constant for a group of cases, whatever may be the importance finally allotted to them.

I am, Sir, yours faithfully,

F. G. CROOKSHANK.

Wimpole-street, W., April 23rd, 1928.

[1] R.S.M. Proceedings (Medical Section), 1913, vii. 7–9.
[2] Nouveau Traité de Médecine, ix., 677.
[3] THE LANCET, 1921, ii., 885.
[4] Presse Médicale, April 18th, 1928, p. 482.

LIVER IN PERNICIOUS ANÆMIA.

To the Editor of THE LANCET.

SIR,—In your leading article last week you do not mention a point of view which, as it seems to me, goes far to explain the beneficial results accruing from the treatment of pernicious anæmia with liver or an extract thereof. It is held by many (with whom I am personally in agreement) that the true pathology of the disease lies in the persistence of embryonic erythropoiesis in the liver, which normally ceases at birth. In consequence, the normal method of production of erythrocytes in the bone-marrow, via the normoblast, never properly develops. When therefore some extraneous factor comes into play—

of which sepsis, hæmorrhage, and syphilis are the most common—the bone-marrow receives what may be loosely described as a fatal blow. The evidence for this is chiefly to be found in the presence of embryonic erythroblasts in the circulating blood, and the process itself can be seen in situ in the liver post mortem. Quite recently I have examined a portion of liver removed during the operation of splenectomy in a case of pernicious anæmia. The notes will shortly be published in full, but I may say here that there could be no doubt that the case was one of true pernicious anæmia, or that the appearances in the liver were those of embryonic erythropoiesis. Incidentally, the organ contained no free iron. The blood picture has returned to normal under treatment by raw liver.

I submit that the explanation of the action of liver diet may be found in the view that a liver in which embryonic erythropoiesis is persisting is deficient in the production of the normal hepatic stimulant to, or control of, the bone-marrow; administration of raw liver, or an active extract thereof, supplies this substance and thus in time the bone-marrow is able to resume its normal functions. In the "embryonic" conception of pernicious anæmia, hæmolysis and achlorhydria are regarded as accessory and not causative factors, and not as essential for the diagnosis of the disease. Your leading article would seem to support this last point.

I am, Sir, yours faithfully,

A. KNYVETT GORDON.

Bedford-square, W.C., April 28th, 1928.

INJECTION TREATMENT OF VARICOSE VEINS.

To the Editor of THE LANCET.

SIR,—The procedure I prefer for the treatment of varicose veins is the one I saw Prof. Sicard using at his Paris clinic. The needle is inserted while the patient is standing on an operating table; when blood has been drawn he is directed to lie down very slowly; the injection is made in this position. If the vein is large the patient is recumbent from beginning to end.

The reasons for this preference are as follows. Normally the flow of blood is from the superficial to the deep veins. Sicard was able to demonstrate by injecting lipiodol into varicose veins that in the horizontal position the blood from the superficial veins had no tendency to join the deep veins; with the patient in this position, therefore, the sclerosing solution is not carried away by the blood stream, and is thus able to act locally. The other reason is that with the patient recumbent we are dealing with a comparatively empty vein, so that the sclerosing solution has every opportunity to come in direct contact with the endothelium, a most important and essential factor for success.

When the patient is erect the flow of blood in the varicose vein is centrifugal and not towards the heart. This has been shown by Tentzer, Sicard, and Gally, and Delater, working with solutions opaque to X rays, and by Magnus, who used a hæmodromograph. The radical operation, which has until recently been the treatment par excellence, is unsatisfactory because one can never be certain that the valves of the communicating veins between the superficial and deep vessels are not so inefficient as to allow a reflux from the deep veins into the superficial ones; and here, no doubt, lies the cause of the innumerable failures of surgical intervention. The aim of the treatment with a sclerosing solution is to obliterate the entire varicose system right down to the valves leading into the deep veins, and it is the only treatment which can claim to accomplish it. The principle is an old one, being based on the observation that injury to a vein may lead to thrombosis and spontaneous cure. The injected sclerosing fluid injures the intima and penetrates the tunica muscularis to reach the adventitia, as has been demonstrated by Tentzer. This observer added collargol to a solution of sodium salicylate, which he injected into a varicose vein, and on removing the vein a few hours later was able to show the presence of collargol (and therefore of sodium salicylate) throughout the thickness of the venous wall and even outside it. The opposing venous walls swell and come into contact with each other; at the same time a network of fibrous tracts is formed, which anchor themselves to the whole surface of the injured endothelium and to the whole thickness of the wall. All the fibrous deposits adhere to these tracts, and a free clot is not formed. By way of these tracts the thrombus is firmly attached to all three layers of the venous wall and is unable to detach itself, so that embolism is impossible.

My experience of many hundred cases is entirely based on the use of Génévrier's quinine solution (start with 0·5 c.cm. and do not go beyond 1·0 c.cm.) and of 30 to 40 per cent. sod. salicylate, of which 1 to 3 c.cm. may be used. Looking through the British and continental papers on the subject I have counted the number of administrations; they almost reach six figures, but not a single case of embolism due to the use of the above-named substances is reported. There have been a few fatal cases, but they were due to NaCl+Glucose or other sclerosing substances.

I fully endorse the contra-indications mentioned by Mr. Maingot and Mr. Carlton, but would add that pregnancy is, in my opinion, an absolute contra-indication to the use of any sclerosing solutions, as the varicose state is here chiefly due to changed endocrine metabolism and might entirely disappear after parturition. Certain forms of varicose veins, such as those resembling a sponge and those complicated by cutaneous lesions, do not respond well to the treatment. Before deciding whether the case is suitable it is, of course, essential to be sure that the patient's discomfort is actually due to his varicose veins. The coincidence of varicose veins with neuritis, periostitis, arthritis, and of flat-foot is very liable to cause confusion.

I am, Sir, yours faithfully,

London, W., April 23rd, 1928. A. A. MILLER.

To the Editor of THE LANCET.

SIR,—In a paper published last year [1] I recommended that injections should be made with the patient in a sitting posture, the chair being placed on a dais for the sake of the operator's convenience. Since then, however, I have treated over 100 cases in the following manner, and find it much more satisfactory.

I still employ my dais, but the treatment can be accomplished quite well without it. The patient remains standing and puts his weight on the leg to be treated. A pneumatic tourniquet is then placed above the knee and the pressure in it is raised sufficiently to restrict the venous flow. (On my own tourniquet I have an aneroid manometer which I cause to register 130 mm. of Hg, but this, though a useful refinement, is, of course, not a necessity.) The patient is then asked to lie down; I use a reclining chair with an adjustable foot-rest, but a consulting room couch does almost as well. The needle without the syringe is inserted into the vein and as soon as a bead of blood shows in its lumen the tourniquet valve is unscrewed, the leg is elevated above the plane of the body, and the veins are emptied by gently but firmly stroking towards the thigh, and the injection proceeded with secundum artem.

I am aware that many authorities do not agree with the use of the tourniquet, but if the following precautions are taken I am sure this method will be found to be most efficient.

(1) Be sure that the vein shows up as a definite varicose vein before the tourniquet is applied, and is not merely a normal vein which has dilated owing to the extra pressure imposed by the tourniquet. (2) Do not forget to remove the tourniquet pressure the moment the vein has been entered.

The following appear to me to be the advantages of this method. (1) It is much easier to enter the selected vein with the patient's leg in the horizontal plane. (2) Since the operator can sit comfortably alongside the patient and rest his hands on the limb he has a much steadier control upon the syringe and needle, and this, I think, is a great advantage where

[1] Practitioner, 1927.

it is so important that the point of the needle shall remain within the vein throughout the injection. (3) The vein being collapsed and practically free from blood, the solution will act in greater concentration and will be more constant in its action. (4) Since the patient is either prone or supine there is less tendency to faintness and certainly less danger should this occur.

For sterilising the skin over the vein a 5 per cent. solution of thymol in alcohol will be found efficient. On withdrawing the needle from the vein I firmly press one finger over the puncture and keep it there for a minute or so, when I apply a small lenticular object to replace my finger and keep steady with an elastic band. This remains in position for ten minutes, after which I allow my patient to stand up and conclude the "sitting." I prefer the salicylate solution for the larger veins, but feel that the quinine-urethane is more suitable for the small veins or for veins with very degenerated walls. Finally, I would recommend that possible idiosyncrasies should be kept in mind. Quite recently a patient told me, on being questioned, that she was once given five grains of aspirin and collapsed after it, and that a tiny dose of quinine always produced a most distressing rash.

I am, Sir, yours faithfully,

RONALD THORNHILL.

Harley-street, W., April 23rd, 1928.

DOCTORS AND THE NURSING HOMES REGISTRATION ACT, 1927.

To the Editor of THE LANCET.

SIR,—This Act is of interest to the many hundreds, if not thousands, of doctors who receive into their private houses persons known as "private patients" or paying guests—this latter euphemism being adopted to solace the patients or relatives. The position is this. Before July 1st next every such doctor who receives into his private house even only one mentally or physically ill patient, and includes in an agreement or contract the provision of "nursing," whether by a nurse or attendant or otherwise, will have to register that house, which will become then subject to inspection, from basement to roof and in all its contents, domestic and professional, whether alive or dead, by the local supervising authority, displaying in addition, in a conspicuous position in his house, his certificate of registration.

There are only two ways for him to escape from this objectionable position. Either he should cease, as from July 1st, to receive such patients, or if "nursing" is required, *he should stop the provision of nursing*, arranging that this should be an extra beyond his contract. He should recommend to the relatives a suitable person *for them* to engage, charge them for board and residence, receive as the agent from the relatives the wages, and, handing them over from time to time to the nurse or attendant, obtain a receipt for same addressed to the relatives. In the case of those doctors whose houses cannot be conducted on these suggested lines and must, in consequence, become registered, I would urge that they get into touch as soon as possible with their local authority (county or county borough) and obtain a copy of the draft by-laws in order to see whether they contain anything thought objectionable. If so, then the recognised local medical organisation should be urged to take immediate steps before it is found to be too late.

I am, Sir, yours faithfully,

Hove, May 1st, 1928. E. ROWLAND FOTHERGILL.

EXPERIMENTAL PHONETICS.—At the Linguistic Congress held at The Hague in April, an International Society of Experimental Phonetics was founded, the object of which is the promotion of scientific research in experimental phonetics. The society will issue a bulletin from time to time. The membership fee for 1928 is 5*s.*, and applications, with fee, may be sent to Prof. E. W. Scripture, Strudelhofgasse 4, Vienna, Austria.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

REGISTRATION (BIRTHS, DEATHS, AND MARRIAGES) BILL.

On Friday, April 20th, Captain GUNSTON, in moving the second reading of the Registration (Births, Deaths, and Marriages) Bill, said it was intended to deal with the chaotic system of remunerating and appointing registrars. Although it was a national and centralised service, the officers engaged in it were partly paid by the Guardians, partly by the Exchequer, and partly by fees from the public. The Bill did not propose to take away the good fortune of any officer who was earning good remuneration from fees, but it proposed that when a vacancy occurred, the Registrar-General should be entitled to declare the office a salaried one, and that if there was an excess of fees in the office after the salary had been paid, the balance should go to a central fund to make up the salaries of underpaid officers. Any officer holding a non-salaried office could apply to the Registrar-General to have his office declared a salaried one. Clause 2 provided that the holders of salaried offices should be paid on a scale of salary approved by the Treasury. The clause also abolished the watertight principle of sub-districts, and allowed officers to function over wider areas. Clause 4 made it lawful for the Minister to increase the statutory fees up to 50 per cent. Clause 5 would enable the Registrar-General to give the public the new services which had been demanded since the passing of the original Act. The Bill also provided that proper travelling expenses should be paid.

Mr. G. PETO seconded the motion.

Mr. SCURR moved the rejection of the Bill. He said he opposed the Bill, not because he was opposed to the principle of these officers becoming salaried officers—payment by fees was an absurdity—but because he thought the methods proposed in the Bill would not attain the objects desired. Further, such a Bill should have been introduced as a Government measure.

Mr. MARCH, who seconded the motion for the rejection, said the Government should have been bold enough to bring forward a Poor Law Reform Bill of their own dealing with the whole question.

Payment by Fees Discredited.

Sir KINGSLEY WOOD said that the Minister of Health was very keenly interested in the subject of this Bill. He looked with considerable anxiety on the position of a good many of the registration officers up and down the country. The remuneration of these officers bore no relation to the amount of work that they did, or to the responsibility which was involved. The average total receipts per registrar at present were approximately £137. On the other hand, a number of registrars in larger districts enjoyed very large fees indeed, and in some cases those fees were in excess of what would be regarded as whole-time salaries for such work. Payment by fees had long ago become discredited in this country, and this was the only branch of the public service in which this obsolete system survived. It was far better that the appointment of registrars should rest with the Registrar-General rather than with the boards of guardians. The Bill would not involve any further cost to the State, although it might involve increased fees in some cases. That was only right, as the rate of fees was fixed many years ago, and had no regard to the present conditions. When the Bill got into Committee the Government and other Members of the House might desire to offer suggestions regarding its exact machinery and details, but so far as the principle was concerned there need be no alarm from the point of view of the public.

Vital Statistics.

Colonel FREMANTLE said he was particularly concerned with the social services, and those services, especially in relation to public health, depended very largely upon the wonderful volume of facts got together by the registration system of the country. The whole system of vital statistics was dependent, mainly and fundamentally, on this system of registration, and the vital statistics were essential for purely financial matters, as well as for other purposes for the profession of the actuary with all that it implied. They could constantly check their system of administration according to the results of vital statistics. It was used for research, and could be used much more for research if it was properly centralised as a service. A good many members, especially those interested in scientific matters, were very much concerned with the question of eugenics and the future development of the race. The Eugenic Society had written to him as follows:—

"The advantages to be obtained from accurate statistical information concerning many social questions are becoming more widely recognised . . . . The separate register now

maintained for different purposes should be amalgamated . . . . This Bill would facilitate the introduction of those minor reforms which must from time to time be found to be desirable. It may be hoped that the ascertainment of the differences in the rate of multiplication of the different social classes would thus be made possible, this being a subject of great practical importance so far as the future welfare of the nation is concerned."

There was no end to the possible development of this system. A system had been developed very largely in recent years under successive Registrars-General, and their efficient staffs at Somerset House, but they needed a proper method of control such as was given in this Bill; and he cordially supported the measure.

Whole-time Service.

Dr. VERNON DAVIES said he thought it would be impossible to make this a whole-time service. It was not difficult work; it was not work that required a very high standard of education. In spite of what had been said by Colonel Fremantle, the work of a registrar of births and deaths was to-day almost entirely the notification of certain facts, and these records in course of time went up to London, to the Registrar-General, in whose department all the important work was done. It was absolutely impossible that the work in connexion with the vital statistics could be done elsewhere than in a central place. He did not see how they could make this a salaried service in the smaller districts. There was no reason, however, why means should not be adopted to try to improve the position of the men at present in the service. The position of the registrars had varied considerably in recent years. The building of hospitals and maternity homes in certain districts had had a considerable effect. He had had a return sent to him confidentially by the registrar of a district close to which two hospitals had been built. He informed him (Dr. Davies) that whereas in 1921 he registered 782 births and 340 deaths, by 1927 the number of births had been reduced to 326, and the number of deaths to 262. On the other hand, in the case of one of these hospitals the number of births was 630, and in the case of the other the number of births was 200 where previously there had been no births. In this particular case the registrar of births and deaths in the district in which the hospitals were situated had done exceedingly well by having a great increase in remuneration from fees, but the registrar who had been in practice for many years on the surrounding borders had seen his income very materially decrease, and he (Dr. Davies) would like to know upon what basis of fees that registrar was to be dealt with in the future. He gave general support to the Bill, but expressed the hope that he might be on the Committee which dealt with the measure, so that he might be able to raise one or two points of detail.

The Bill was read a second time.

PROTECTION OF DOGS BILL.

Sir ROBERT GOWER moved the second reading of the Protection of Dogs Bill.

Lieut.-Commander KENWORTHY seconded the motion. He said there were two classes of people who were in favour of this Bill, first of all dog lovers, and secondly those who, on grounds of humanity and decency of feeling, objected to the dog being used as a subject for vivisection and for experiments. There were other animals that could be used.

Dr. LITTLE said he wished to bring forward very special reasons why the dog should not be exempted from these experiments. The dog was absolutely necessary for this type of work, because it was most like the human being in regard to its organs and many other parts of its body. Dr. Little was still speaking at 4 o'clock, when the debate was automatically adjourned under the rules of the House. The Bill was accordingly "talked out."

NATIONAL HEALTH INSURANCE BILL.

THE National Health Insurance Bill was considered by Standing Committee C of the House of Commons on April 24th. Mr. WILLIAM NICHOLSON was in the chair. The Bill amends the National Health Insurance Act 1924, and other enactments relating to health insurance by providing for the application towards the cost of benefits and expenses of administration of certain moneys consisting of contributions, as to which there is either no provision in the existing Act for their being so applied, or they could only be applied in this way in a manner that would not involve a pari passu payment by the Exchequer. The Bill also proposes to bring two additional classes of workers under compulsory insurance. In both respects a fresh liability is imposed upon the Exchequer.

Clause 1: Amendments Moved.

Clause 1 makes provision in the case of a man who becomes unemployed before June 30th or Dec. 31st, that should he become ill prior to the prescribed date, such illness is not to be taken into account as part of the two years' period during which he would be kept in benefit under the Act.

Mr. WHITELEY moved an amendment seeking to extend that position so that if an insured person became incapable of work after ceasing to be employed, the period during which he was incapable should not be taken into account.

Mr. CHAMBERLAIN (Minister of Health) said he hoped the hon. Member would not press the amendment. While they wished to be generous in these matters, some regard must be had to the financial position of the various societies, and the Committee must remember that very generous provision for insured persons was already made under the Clause. The proposal of the hon. Member might mean a very considerable extension of free insurance, and he thought that it would be altogether unreasonable to ask the societies to carry such a burden.

The amendment was withdrawn.

Mr. NAYLOR moved an amendment to enable an unemployed man to be treated as an insured person for a further period of five years beyond the maximum period of two and three-quarter years provided in the Bill.

Mr. CHAMBERLAIN said that an insured person, even after the two and three-quarter years, might be given a still further period of free insurance if he happened to be ill at the beginning or end of the original period. To ask that a man, after having had two and three-quarter years of free insurance, should be given another five years was to ask for something which could not possibly stand examination.

Mr. MELLER said that the Committee ought to bear in mind that they were dealing here not with some charitable gift from the State, but with an insurance scheme. All the concessions given under the Bill would cost money, and he understood that the Actuary had been searching round in every nook and cranny to find money in order to give these concessions, and before those concessions were extended it ought to be shown whence the necessary money could be obtained.

Mr. RHYS DAVIES said that the position was this: provision was already made under the Bill whereby a man who was insured under the National Health Insurance Act, on reaching the age of 60, could be unemployed for five years and yet be entitled to the old-age pension at 65, and his widow would be entitled to pension and allowances if there were any children of pensionable age. All those who supported the amendment wanted was, that the same principle should apply also to the younger men. The number of cases covered by the amendment could not be very large, and it would be a very kindly act on the part of Parliament and of the Minister of Health to do something for these people.

Dr. DRUMMOND SHIELS said he would like to emphasise the effect on the physical condition of men which was caused by a number of years of unemployment. It was very important to keep in mind the linking-up of this scheme with the Contributory Pensions Act. Many of these unemployed men had not been sufficiently fed and they were very liable to illness and death. They had been told that this was an insurance scheme and that they ought to remember that point when considering its finances, but they should also remember that an insurance scheme gave certain benefits and was supposed to ensure that those benefits would be provided.

Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health): You cannot say that; the benefits are definite under the Act and are subject to conditions.

Dr. SHIELS said that they must remember the obligatory side as well as the financial side. He hoped, if the proposal made in this amendment could not be accepted in its entirety, that the Minister would at least keep these men within the scheme, so that a loss of benefit to widows and children would not result.

Mr. CHAMBERLAIN said that if they carried the argument that a person who became permanently unemployable was nevertheless morally entitled to receive the benefits which he would have received had he been employed to its logical conclusion, they could not stop at five years; they must say that whatever period was necessary to enable the man to fulfil the conditions, would be made up for him. He submitted that that was not a reasonable proposition. The provision already made under the clause had not been fully appreciated by the Labour Party. The people who were left out of consideration were only those who for one cause or another were permanently unemployable and therefore not suitable subjects for insurance.

The amendment was rejected by 18 votes to 15.

Clause 2: Inmates of Hospitals.

On Clause 2 (Amendment of Section 17 of the principal Act as to inmates of hospitals, &c.),

Mr. BROAD moved an amendment to omit the provision that benefit in the case of an insured person who was an inmate of a hospital, sanatorium, or similar institution, should be paid in weekly instalments of not less than 10*s.*,

and not more than £2 per week, and to substitute the provision that such benefit might be paid in a lump sum.

Mr. CHAMBERLAIN said that in this provision of the Bill they were dealing with the recommendations of the Royal Commission. The Consultative Council endorsed the recommendation of the Royal Commission, and it was with their assent and approval that the Bill had been drafted in its existing form. He could not therefore agree to the amendment.

After further discussion, during which several Labour Members urged the Minister of Health to reconsider his attitude on this matter,

Mr. CHAMBERLAIN said that without committing himself at that stage to anything, he would be willing to consider this question a little further.

The Committee adjourned.

SUNDAY TRADING BILL.

In the House of Commons on Tuesday, May 1st, Sir F. SANDERSON asked leave to introduce a Bill to restrict the opening of shops on Sunday. He said that no Bill had been passed through the House on this subject since the reign of Charles II., when a measure was passed making Sunday trading illegal and imposing a fine of 5*s.* for each offence. That Act still remained the law of the country, save for an Act promoted by the London County Council which prohibited street trading by hawkers except under licence issued by the borough council. It was generally realised that the present law was obsolete and not fit to deal with present-day conditions. The present Bill represented the greatest common measure of agreement and reconciled conflicting interests of all kinds. It did not deal with such places as public-houses, other places of refreshment, or the sale of newspapers and periodicals, and medicines and surgical appliances. It also provided for the sale of many other necessary commodities during specified hours.

Leave was given to introduce the Bill, which was brought in and read a first time.

HOUSE OF LORDS.

TUESDAY, MAY 1ST.

Local Authorities (Emergency Provisions) Bill.

The Local Authorities (Emergency Provisions) Bill, a measure which appoints the Metropolitan Asylums Board as the body to control the distribution of the Metropolitan Common Poor Fund, was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 25TH.

Medical Services in Palestine.

Colonel WEDGWOOD asked the Secretary of State for the Colonies whether the Government medical service in Palestine was open to women doctors as in the Federated Malay States and East Africa as well as in Great Britain; and, if not, for what reason.—Mr. AMERY replied: There are as yet no Government medical appointments in Palestine open to women doctors. The special services for which women doctors are employed in the Federated Malay States and Tropical Africa are adequately provided for in Palestine by other agencies.

Replying to a further question by Mr. KELLY, Mr. AMERY said that the special positions dealing with infant welfare which ordinarily were filled by women doctors were met in Palestine with a widespread service of nursing and midwives and, in the opinion of the Government, there was no special opening for women doctors in other capacities.

Maternal Mortality Research.

Sir ROBERT THOMAS asked the Minister of Health whether, in view of the continued high rate of maternal mortality, he would consider granting financial aid to research into this question.—Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) replied: My right hon. friend is proposing to appoint a special committee on maternal mortality, one of whose functions will be to consider the need for further research into the question, and that committee will no doubt report whether any further financial assistance could usefully be provided for this purpose.

Use of Sulphur in Barley Milling.

Mr. WESTWOOD asked the Minister of Health if he was aware that the Public Health (Preservatives in Food) Regulations, in so far as the prohibition of the use of sulphur in the milling of barley was concerned, was having a serious effect upon the home-barley milling trade; that permission had been granted to the cornflour millers to use sulphur; and that the granting of permission to use a smaller percentage of sulphur in the milling of barley than was now used in the milling of cornflour would avoid further unemployment in the barley milling trade; and was he prepared favourably to consider granting to barley millers a similar concession to that granted to cornflour millers under the foregoing regulations.—Sir KINGSLEY WOOD replied: My right hon. friend has received representations that the prohibition of the treatment of barley with sulphur dioxide is prejudicial to British barley millers, and he has also received representations that the prohibition is in the interests of British barley growers. The prohibition applies equally to home-milled and imported barley, and my right hon. friend does not see why any efficient miller should be adversely affected. There is no true analogy between barley and cornflour, since in the former case sulphur dioxide is merely used as a bleacher, and in the latter it is an essential part of the process of extracting the starch from the grain. My right hon. friend does not consider that the addition of this undesirable substance to food can be justified on the ground that it has a bleaching effect, and he regrets, therefore, that he cannot reconsider the decision not to allow its use in barley.

THURSDAY, APRIL 26TH.

Tuberculosis in England and Wales.

Captain BOURNE asked the Minister of Health the estimated number of persons in England and Wales suffering from tuberculosis on Jan. 1st, 1928, or on the latest convenient date.—Mr. CHAMBERLAIN replied: According to the returns furnished to my department, the total number of notified cases of tuberculosis which remained on the registers of local authorities on Dec. 31st last was 363,187.

Captain BOURNE asked the Minister of Health the total number of sanatoria for the treatment of tuberculosis in England and Wales, distinguishing between those maintained wholly or partially from public funds and those supported by fees paid by the patients.—Mr. CHAMBERLAIN replied: The number of institutions approved by my department for the residential treatment of tuberculosis under the schemes of local authorities in England and Wales (excluding general hospitals) is 349, of which 215 have been provided by local authorities and 134 by voluntary bodies. These are all maintained wholly or partially out of public funds. I have no complete information regarding those institutions not so maintained.

Captain BOURNE asked the Minister of Health the number of persons in England and Wales who underwent treatment for tuberculosis in sanatoria during the year 1927, and the average duration of such treatment.—Mr. CHAMBERLAIN replied: Complete particulars for the year 1927 are not yet available. During 1926 the number of persons who received residential treatment for tuberculosis under the schemes of local authorities was 63,680, and the average duration of treatment was approximately 150 days.

Small-pox among Casuals.

Mr. KELLY asked the Minister of Health whether, arising out of the necessity to continue the arrangements for the detection of small-pox among casuals and the issue of Circular 830, pointing out that casual wards should not be closed except in the most exceptional circumstances, he could give any indication as to the extent the advice contained in the circular was being carried out by boards of guardians who had closed, or were contemplating the closing of, casual wards.—Mr. CHAMBERLAIN replied: The circular in question deals with the detection of small-pox among casuals and advises boards of guardians that, in the event of a case of small-pox being found in a casual ward, the temporary closing of the ward should not be necessary if certain precautions are taken; the circular does not in any way deal with the question of the permanent closing of redundant casual wards.

Deaths of Women in Pregnancy.

Sir BASIL PETO asked the Minister of Health whether his department had any statistics of the number of deaths of women in pregnancy from septic peritonitis; and whether he proposed to take any steps to safeguard them against the onset of this condition at maternity welfare centres.—Mr. CHAMBERLAIN replied: The last year for which a detailed classification of the deaths due to pregnancy and childbearing is at present available is 1925, and in that year there were 84 deaths from septic peritonitis, perimetritis, and pelvic peritonitis. As regards the second part of the question, it is one of the duties of the doctors at antenatal clinics to detect and remedy any focus of infection which might later be a cause of septic infection.

MONDAY, APRIL 30TH.

Sleeping Sickness in Mozambique.

Sir ROBERT THOMAS asked the Secretary of State for the Colonies whether he was aware that a commission, appointed by the Lisbon Government, was investigating the causes of sleeping sickness in Mozambique, with special reference to the tsetse fly; and whether our own medical service in

East Africa was collaborating with the Portuguese societies in this matter.—Mr. AMERY replied: My attention has not been drawn to the appointment of this commission, but I will ask my right hon. friend the Secretary of State for Foreign Affairs to make inquiry in the matter. A number of such missions, including several in our own territories, are engaged in the investigation of sleeping sickness problems in Africa, and endeavours are made, through the medium of a subcommittee of the committee of civil research, which deals with this question in its larger aspects, to ensure that effective collaboration is maintained among workers engaged in the study of sleeping sickness.

Local Government Reform.

Mr. HURD asked the Minister of Health if, and when, he would circulate his local government proposals for discussion by the local authorities concerned.—Sir KINGSLEY WOOD replied: Yes, sir. My right hon. friend hopes to circulate a memorandum for discussion by local authorities at an early date.

Mr. HURD asked the Minister of Health if he would give an assurance that the proposed Local Government Bill would await the Report of the Royal Commission on Local Government, now completing its investigations.—Sir KINGSLEY WOOD replied: No, sir. The programme of the Government must proceed on the lines announced by my right hon. friend the Chancellor of the Exchequer. There is, however, a very substantial field of inquiry within the terms of reference of the Royal Commission which is not covered by the Budget proposals, and as at present advised, my right hon. friend the Minister of Health sees no reason to interrupt the satisfactory progress which, as implied in the question, the Commission are making with their labours in that field. My right hon. friend is, however, in consultation with the chairman of the Commission on the position.

Free Choice of Dentist.

Sir JAMES GRANT asked the Minister of Health if he was aware that patients, in Health Insurance Section Approved Society No. 214, Co-operative Wholesale Society, were unable to obtain dental treatment by the dentist of their choice, as the society named refused to pay the scale of fees approved by the Dental Benefit Joint Committee on July 27th, 1926, to operate from Oct. 1st, 1926, to July 6th, 1930; and if he would take any action in the matter.—Mr. CHAMBERLAIN replied: I am aware that the approved society referred to has not recognised the scale of charges approved by the Dental Benefit Joint Committee, and a number of complaints have been received to the effect sugested in the question. The society cannot be considered to be infringing any existing statutory provision by limiting in this manner the members' freedom of choice of dentist, but the whole question on the steps to be taken to secure that insured persons entitled to dental benefit shall be able to obtain satisfactory treatment with proper freedom of choice of dentist, will receive consideration in connexion with the regulations to be made on the subject under the National Health Insurance Bill now before the House.

TUESDAY, MAY 1ST.

Treatment of Venereal Disease in Scotland.

Mr. BUCHANAN asked the Secretary of State for Scotland if he was aware that in certain counties in Scotland no facilities were maintained for the treatment of venereal disease; that 26 towns of a population of 10,000 and over had no clinic; that a number of sufferers were constantly shifting from place to place; and if, in view of the dissatisfaction arising, he would consider the establishing of a committee of inquiry into the whole question.—Sir J. GILMOUR replied: While in certain counties in Scotland there are no centres for the treatment of venereal disease, there is no county in Scotland that is without facilities for such treatment, either at a centre situated within its borders or by arrangements with another local authority. With regard to towns of a population of 10,000 and over the position is as stated in my reply of April 17th. I am aware that a certain number of persons suffering from venereal disease may shift from place to place and, indeed, for one important class of persons who frequently move—viz., sailors—treatment facilities have been specially provided in the principal ports. As I have stated in my previous answer already referred to, the development of venereal disease schemes in all areas is being carefully watched and reviewed by the Scottish Board of Health, and in connexion with the Budget proposals I have under consideration the whole position of local administration in Scotland. I do not think that at present any good purpose would be served by the appointment of a committee of inquiry such as the hon. Member suggests.

Royal Veterinary College, London.

Capt. CROOKSHANK asked the Minister of Agriculture whether his attention had been called to the state of the buildings of the Royal Veterinary College in London, some of which had been condemned by the London County Council, and to the consequent difficulties with which the College was faced in carrying on the work of assisting agriculture through the spread of veterinary science; whether he was aware of the grants made by the Governments of all other European countries towards veterinary science; and whether it was the intention of the Government to make any grants from the Development Fund, the Empire Marketing Board Fund, or from any other funds at their disposal, to assist in rebuilding the Royal Veterinary College in London, and to help the further spread of veterinary knowledge.—Mr. GUINNESS replied: I am well acquainted with the unsatisfactory condition of the buildings of the Royal Veterinary College and of the consequent difficulties under which the College labours; both my predecessor and I have conferred with the governors of the College on the subject. The governors are endeavouring to obtain the necessary funds to rebuild the College, and the Ministry has promised a grant of £35,000 on a £ for £ basis towards the funds which the governors are raising. I have no exact information as to the extent of the State grants made to similar institutions on the continent, but my hon. and gallant friend may rest assured that I appreciate the importance of this subject, and will do everything in my power to assist the College.

Vagrants and the Spread of Small-pox.

Mr. GRUNDY asked the Minister of Health (1) whether, in consequence of the epidemic of small-pox, he had instructed boards of guardians to adhere strictly to the provisions with regard to the disinfection of the vagrants' own clothes; and whether any instructions had been issued by him that these clothes, when taken away at night, should not all be bundled together; and (2) whether he had instructed boards of guardians to adhere strictly to the provisions with regard to the provision of warm baths; and whether any special instructions had been issued that nightshirts and towels should be washed before being given to each separate person.—Sir KINGSLEY WOOD replied: I am sending the hon. Member copies of the circular letters recently issued to boards of guardians in consequence of the epidemic of small-pox. Apart from these no special instructions have been issued, but the guardians are fully aware of the regulations in force, and the officers of my department would, as occasion might require, draw their attention to any necessary improvements in the arrangements of the several casual wards. As at present advised, my right hon. friend sees no ground for further action on his part.

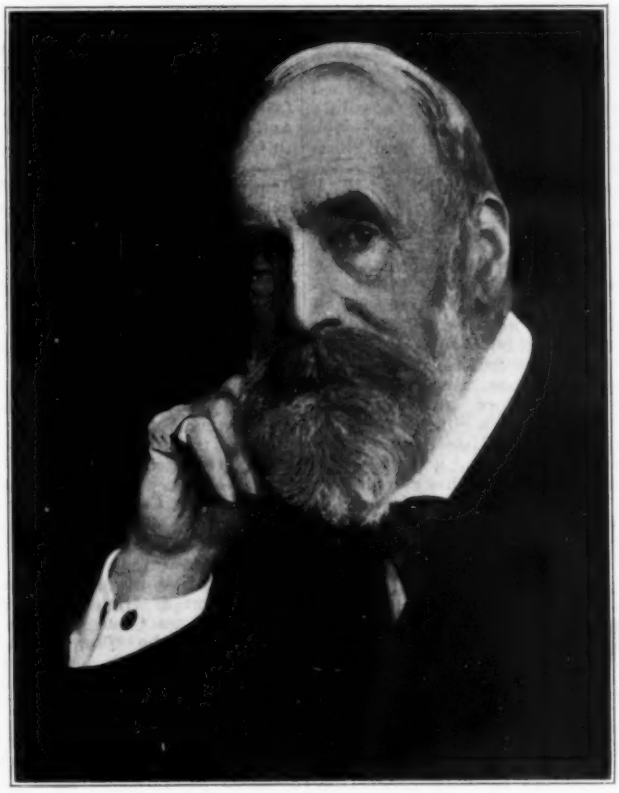
MEDICAL VISIT TO DENMARK.—The summer meeting of the University of Durham Medical Society took the form of a visit to the University and Hospitals of Copenhagen, from March 31st to April 6th. The party consisted of 45 students and members of the staff of the Newcastle Medical School, and the visit was arranged at the invitation of the Danish Students' National Union and the Medical Faculty of the University, with whom (H.B.M.'s Chargé d'Affaires) Mr. Millington Drake and Dr. Vincent Naeser had coöperated. The welcome given to the party was most cordial. On March 31st and April 2nd meetings were held at the Rigshospital. Prof. Knud Faber, in a lecture on the Medical Curriculum in Denmark, said that the course of study lasted seven years, and was always followed by two years' residence in hospital. One of the chief features of the student's career was the weeding-out process which took place in the third year, at the end of the courses in anatomy and physiology, and after some preliminary hospital work. More than a third of the students were rejected at this stage. Prof. Faber also gave a clinical lecture on Undulant Fever due to infection by *Bacillus abortus*, a disease which has been recently recognised as very prevalent in Denmark. Prof. Christen Lundsgaard followed with a lecture on Arterio-sclerosis, including an account of his own research into the subject, and Prof. V. Schaldemose gave a demonstration and operated in the big surgical amphitheatre of the hospital. Prof. C. E. Bloch lectured on Vitamins, showing cases of xerophthalmia and describing an epidemic of this deficiency disease in Denmark in 1918; whilst Prof. A. Krogh gave an address on Capillary Physiology, illustrated by the cinematograph. The remaining days were devoted to Prof. S. Monrad's Hospital, the Bispebjerg Hospital, the Finsen Institute, and the Serum Institute, where Dr. Thorvald Madsen received the party and gave a lecture. An unusual meeting was held on the outward journey on the S.S. *Arcturus*, when Dr. J. C. Spence, the president, took the chair, and Mr. Rutherford introduced a discussion on Sea Sickness, in which Captain Hjelt and many other speakers described their experiences and theories.

Obituary.

SIR WILLIAM CHURCH, BART., K.C.B.,

LATE PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

WE regret deeply to record the death on Friday last, April 27th, of Sir William Selby Church, which occurred at his country house, Woodside, Hatfield, in the ninety-first year of his age. He was a fine exponent of medicine, a judicious counsellor in various directions where the developments of science and the public and professional interests were connected, and as magistrate and county councillor brought all this capacity of judgment and impartiality to the conduct of his country's affairs. His qualities of wisdom, firmness, and fairness had gained for him the high regard of all over more than half a century of steady unassuming work.



SIR WILLIAM CHURCH.

Photograph by Elliott & Fry.

William Selby Church, truly a Victorian in that he was born a few months after the accession of the great Queen, was the second son of John Church, also of Woodside, Hatfield, by his wife Isabella, the daughter of George Selby, of Twizell House, Northumberland. He was educated at Harrow, where he attained to a high place in the school, while becoming one of the prominent young cricketers of his generation, for he represented Harrow at the national game from 1853 to 1856, being captain of the eleven in the last year. Proceeding from Harrow to University College, Oxford, he obtained a first class in the natural science schools, and shortly afterwards was appointed Lee Reader in Anatomy, a university post which carried with it a studentship of Christchurch, and of this society he was a Fellow for the nine years following his graduation. Deciding to enter the medical profession, he joined the school of St. Bartholomew's Hospital, and after qualification as L.R.C.P., was appointed lecturer in the school in comparative anatomy. He graduated at Oxford in medicine in 1864, and was appointed assistant physician to the hospital in 1867, among his senior colleagues on the staff being Savory, Paget, Holden, Farre, and Southey. In 1868 he proceeded to the M.D. degree at Oxford, and was elected F.R.C.P. Lond. in 1870. In the matter of obtaining quick charge of beds at St. Bartholomew's Hospital Church was fortunate, for in his case the protracted delay which marked the career of several of the distinguished physicians who followed him upon the staff was not incurred, and in 1874 he became full physician to the hospital, a position which he enjoyed for 28 years before retirement under the age rule, when he was appointed consulting physician. He was consequently associated as assistant, full, and consulting physician with St. Bartholomew's for over 60 years, and, save for a brief period of office at the Victoria Park Hospital, he served that charity only as a member of the honorary staff. As a physician and as a teacher he was systematic, diligent, and thorough, but a reserved nature, or rather, perhaps, manner, led to his actual instruction being more appreciated by those closely connected with him, as clerk or house officer, than by the students who attended his formal lectures and demonstrations. He was insistent upon the value of accurate notetaking and of regular attendance at autopsies.

Dr. Morley Fletcher, senior physician to St. Bartholomew's Hospital, sends us the following estimate of Sir William Church, which gives an excellent picture of the dead leader. He writes: "Sir William Church was no longer on the active staff of St. Bartholomew's Hospital when I was appointed assistant physician, but I had been associated with him for some years as a member of the teaching staff and later as medical registrar. My first meeting with him was as one of his clinical clerks and two years later I was his house physician, and I feel that I owe much to his fine clinical teaching. He was not a man of many words and was by no means discursive at the bedside, but if asked questions he would respond and discourse freely on the point under discussion. Perhaps the students were inclined to be overawed by his commanding presence and his somewhat brusque manner, and I think he was at his best with his house physicians and I have often compared notes with others who held this post under him of whom no less than 46 served under him during his unusual tenure of office as full physician—no less than 28 years. There has been a general agreement among us that he was a wonderful clinical teacher for senior men. His power of diagnosis was remarkable; he abhorred guessing and his opinion on a case was always based on a thorough and careful examination and the diagnosis, when made, was almost invariably correct. He never obtained or took steps to obtain a large practice among the public, but his advice was eagerly sought by and freely given to members of the medical profession. Especially was he a fine morbid anatomist, and for years performed the medical post-mortem examinations at the hospital. The records so carefully drawn up by him are an evidence of his devotion to this important department of medicine. He expected his clinical clerks to be regular in their attendance in the post-mortem room and, in the wards, he would

discuss with them what they had seen there. And it was rare that he should be absent from his rounds in the wards, though it was always recognised that on Derby Day and during Ascot week he would not put in an appearance. The Medical School of the hospital owes much to him; he was chairman of the finance committee for many years, and was instrumental persistently in furthering the interests of the school. To individuals seeking his advice—and many did so—he was indeed a wise counsellor; to those in doubt as to the right course to pursue in some matter of difficulty he would quietly listen and then with sound judgment and in a few words give the desired help. His love of sport, exemplified in his early skill as a cricketer, came out in his proficiency as a skater. It was his delight whenever possible to skate, and generally he could be found skating with members of the skating club at the Toxophilite Club in Regent's Park. He was one of the oldest members of the club and a bold and skilful skater. He kept this sport up until comparatively late in life, enjoying it with the keenness and enthusiasm of a boy. Church will be greatly missed by many whom he has helped with his wise and kindly advice. His absolute sincerity and honesty of purpose were combined with sound judgment and clear-sighted vision, and these qualities rendered him invaluable in the important positions he held during his long and honoured life."

To Dr. Morley Fletcher's estimate there may be added the testimony of an actual though junior colleague of Sir William Church on the hospital staff. "It is impossible," he writes, "to over-estimate the good influence exercised by Church at St. Bartholomew's. There was, as it happened, at the time when he arrived from Oxford, urgent need to provide new buildings for the accommodation both of patients and students, and here he was in the front as an adviser full of wisdom and common sense, always open to reasoned argument, and therefore an admirable colleague and an ideal chairman of a committee. As a physician all his practice was based upon the constant study of morbid anatomy, and a visit to the post-mortem room invariably prefaced his attendance in the wards. He was a first-rate clinician and a sound and patient teacher whose views were always held in the greatest respect by his students and house physicians."

From such personal verdicts upon Church alike as man of science and man of affairs we can understand how he came to be called to the highest positions in his profession, and to discharge the duties finely. At the Royal College of Physicians of London, of which at the time of his death he was the senior Fellow, he had been an examiner on many occasions from 1874 onwards. He was elected on the Council in 1888 and was a Censor in 1890 and 1891; he delivered the Harveian Oration in 1895, became Senior Censor in the following year, and was elected President in 1899, a position which he held for five years, following Sir Samuel Wilks in the chair, and preceding Sir Richard Douglas Powell. His connexion with the Royal Society of Medicine was no less important. He had served as President of the Royal Medical and Chirurgical Society in 1893 and 1894, this term of office corresponding with the unexpired period resulting from the death of Sir Andrew Clark, so that when 14 years later the great amalgamation of the medical societies of the metropolis took place his election as first President was alike a recognition of his outstanding position and a reminiscence of past services. All Church's services to the Royal Society of Medicine were rendered in anxious times, for they followed immediately upon the period when the move was made, through the foresight of John MacAlister, and the generosity of Andrew Clark, from the small premises in Berners-street to the fine house in Hanover-square. In the subsequent establishment at 1, Wimpole-street, as the centre around which are amalgamated the greater number of the metropolitan medical corporations, Church's counsels were in frequent request, and he was president of the Society from 1908 to 1910. We have Sir John MacAlister's testimony that but for Church the amalgamation of the societies might have been deferred for years, even if it was bound to come, but, as president of the Royal College of Physicians at the time, he arranged that a small organising committee of which he afterwards became chairman should meet at the College, and from that time forward things proceeded swiftly.

Sir William Church served on the Royal Commission on Vivisection appointed in 1906, that on the Care and Treatment of the Sick and Wounded in the South African War appointed in 1901, and that on Arsenic Poisoning appointed in the same year. The report of the Commission on the Care and Treatment of the Sick and Wounded, made its appearance the week when Queen Victoria died, and had the important decision to make as to whether the medical and hospital arrangements during the South African war had broken down, and whether there was any justification for the statements that there had been general or widespread neglect of the wounded. The report was brief, was signed by all the five Commissioners, and the impression derived from its perusal was that it was able, comprehensive, and fair. The suggestions made by Sir William Church and his colleagues with a view to remedy the defects in the Royal Army Medical Corps, as revealed before the Commission, have since been largely followed. The Commission on Arsenical Poisoning was also a small one, presided over by Lord Kelvin; it was appointed to inquire into the outbreak of peripheral neuritis in the Manchester hospitals and poor-law infirmaries, which Dr. E. S. Reynolds and other medical men and chemists had attributed to the presence of arsenic in beer. The report was signed by all six Commissioners and led to recommendations as to improvements in the official control over the purity of food, and further recommendations as to the proportions of arsenic in food which would be held to constitute an offence under the Sale of Food and Drugs Act.

For King Edward's Hospital Fund for London Sir William Church did especially valuable work, since over a long period he acted as chairman of the Distribution Committee, a position which made him the virtual steward of vast charitable donations; those who served upon the Committee with him will not readily forget the pains which he took to direct the allocation of grants in accordance with the fair recognition of the diversified claims.

Sir William Church wrote little beyond communications to the *Transactions of St. Bartholomew's Hospital*, of which he was for some time the able editor, but he was the author of a brief contribution to Allbutt and Rolleston's "System of Medicine," in collaboration with Prof. W. Bulloch, on rheumatic fever. This is an excellent piece of writing, and certain contributions to debates before the Royal Medical and Chirurgical Society, circulated on pamphlets, had the same careful grasp of their subjects. But in the Harveian Oration he showed that he had a full and scholarly ability to write when the occasion called upon him, for Church's description of the rise of physiology in England was a fine literary performance.

The honours that fell to him were many. His own University, and those of Glasgow and Manchester, made him D.Sc., of the University of Durham he was D.C.L., he was created baronet in 1901, and received the K.C.B. in 1902. He married Sybil, daughter of Mr. C. J. Bigge, of Linden, Northumberland, and they had two sons, the elder of whom was killed in the recent war, while the younger succeeds to the baronetcy.

JAMES ALEXANDER MACDONALD,

M.D., M.Ch. R.U.I., LL.D. Belf.,

CONSULTING PHYSICIAN, TAUNTON AND SOMERSET HOSPITAL.

A MEMBER of the medical profession who must have been known to an unusual number of his professional colleagues died last week in the person of Dr. J. A. Macdonald, the veteran worker for the cause of medicine through various offices in the

British Medical Association, holding almost every office. He had been a member of the West Somerset Branch Council from 1894 onwards, and had acted as its representative for the past 25 years, holding office as president of the branch in 1899 and again in 1926. In recognition of his work for the profession in the West of England he was elected an associate member of the Dorset and West Hants branch. He became a member of the Central Council in 1906 and soon afterwards was elected chairman of the Representative Body in succession to Sir Victor Horsley. He held this office for three years and was then chosen to succeed Mr. Edmund Owen as chairman of Council. He retired from that position in June, 1920, after serving for ten arduous and eventful years, which included the Insurance Bill crisis and the whole period of the war. He was elected a vice-president of the Association at the Belfast annual meeting in 1909, held office as president of the Section of Medical Sociology at the London meeting in 1910, and during the Birmingham meeting in 1911 the honorary degree of LL.D. Birm. was conferred upon him. The Association's gold medal of merit was awarded him in 1913. In the following year he visited at the request of the Association the New Zealand, Australian, and some of the Far Eastern branches, and he acted again as ambassador of the parent body to Overseas branches when he visited South Africa soon after relinquishing the chairmanship of Council. These visits were greatly appreciated by all members of the branches and did much to bind closer together the Association at home and overseas. During his South African tour in 1920 the occasion was taken to set on foot an appeal for a testimonial fund in recognition of Macdonald's long and distinguished service, and the presentation was made to him during the Newcastle annual meeting by Sir Clifford Allbutt, the outgoing president. From 1920 onwards Macdonald was chairman of the Journal Committee; this was work which made a strong appeal to him, and he was admirably equipped for it by temperament and experience. His loyalty to the *Journal* and its staff was made plain every year when he presented the committee's report to the Annual Representative Meeting.

Macdonald personally exercised great influence by his quiet genial demeanour, but his easy-going manner concealed great shrewdness and independence of mind, and when his mind was made up to what he thought was right, forcible argument was needed to make him change his opinion. He was a pillar of strength to the British Medical Association in difficult times, and the medical profession owes him a great debt.

HENRY LOUIS POWELL HULBERT,
M.D. CAMB., D.P.H.

Dr. Hulbert, who died on April 18th at Grasse, in the French Maritime Alps, after a long period of retirement and ill-health, was in his fifty-seventh year. He was a son of Canon C. A. Hulbert, was born at Slaithwaite (Yorks), educated at Charterhouse and Trinity College, Cambridge, entering St. Bartholomew's Hospital for his medical studies. After qualifying in 1901, he remained for a year at the hospital as house physician, and prepared himself for the School Medical Service by experience of fevers at the Stockwell Hospital (M.A.B.) and Croydon Isolation Hospital, and of administration in an Essex rural district and in Manchester. In 1906 he was appointed school medical officer to the county of Northamptonshire. His work there brought him into close contact with teachers for whom he developed an esteem which was reciprocated by them, and in his will he made a substantial bequest to the county education committee to be used for the benefit of the school-children of the area. In 1911 recurring attacks of pleurisy obliged him to winter in the Swiss Alps, and the enforced rest gave him the opportunity of writing the life of his uncle, Sir F. S. Powell, Bart., the Parliamentary sanitarian, a book which reflects something of the mind of the biographer. During the late war he returned to active medical work, becoming divisional sanitary officer of the 61st (S.M.) Territorial Division, and later commanding the 43rd (Lowland) Sanitary Section, but unfortunately his health again compelled his retirement from practice. Leisure, however, meant for Hulbert the continuance of his earlier study of Latin and Greek literature, and of Plato in particular. He was much interested in art and had many artists among his friends, besides being himself an excellent colourist and water-colour painter. Loyalty to his school and college kept him in touch with a large circle of his former associates, who valued the old-fashioned charm and literary flavour of his letters. Since his retirement he lived a very quiet life with his wife, a daughter of the late Mr. Waring Bardsley, at their villa at Grasse, where he bore with philosophical calm the increasing discomforts of declining health. His death will come as a reminder to his old friends of a broad and smiling figure which embodied a spirit of equal breadth and humour.

WE have to record the death of RICHARD FRANCIS LISTER, M.R.C.S. Eng., who was drowned on April 23rd whilst yachting off Cherbourg. A son of the late Lieut.-Colonel Arthur Hugh Lister, R.A.M.C. (T.), C.M.G., he was educated at Lancing and at Trinity College, Cambridge. Two and a half years ago he entered the London Hospital, where his younger brother is a student, and in January he completed his medical course by taking the Conjoint qualification. At the end of March he became clinical assistant in the ear, nose, and throat department of the hospital, and he was to have returned there at the end of a short holiday at sea. He was a keen member of the United Hospitals Sailing Club.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee 49 cases were considered and £659 voted to 41 applicants. Since the beginning of the year £2862 has been made in grants to urgent cases of distress. The demands for help increase and subscriptions are very urgently needed; they should be sent to the hon. treasurer, Sir Charters Symonds, at 11, Chandos-street, London, W. 1. The following are notes on a few of the cases relieved at the last meeting:—

M.D. At the age of 76, with his wife blind and suffering from cancer, and without a penny saved, the applicant suddenly found himself out of employment. For the last seven years he had been an assistant in a practice, but owing to the death of the principal, and the sale of the practice, the work had terminated. No provision had been made for old age or unemployment, as ever since 1912 the doctor had not been able to earn more than £300 a year, and it had been impossible to save on such an income. Before then he had been in regular practice and had educated two sons for the medical profession. This had naturally been a strain on his income at that time. The eldest son died during the war and the youngest is delicate and is struggling to keep himself going. In addition, there are two daughters to be educated. The doctor is willing and only too anxious to work, but at the age of 76 it is impossible to find employment. He will apply for the old-age pension. Voted £40.

Widow, aged 69, of L.R.C.P. The applicant's husband died early this year after a long illness, leaving her penniless. He was employed as a salaried assistant in a practice, and on his decease the widow received only £35, being the salary due to the date of his death. The sale of the furniture and a small gift of £20 has brought her total capital up to £150. She is now living with her niece, who is the wife of a clergyman who has only his stipend to depend on, and they are therefore unable to support her. Voted £36.

Widow, aged 77, of M.R.C.S. Since the death of her husband in 1884 the applicant has maintained herself as companion-housekeeper. Now at the age of 77 she is unfit for work and her only income is the old-age pension of £26 a year. Voted £36.

DONATIONS AND BEQUESTS.—William Vaughan Roberts, L.R.C.P., L.R.C.S., Blaenau Festiniog, after other bequests, left £1000 to provide a scholarship tenable at either Aberystwyth or Bangor College, and the ultimate residue to the Blaenau and Festiniog and District War Memorial Hospital.—The Manchester Royal Infirmary has received a legacy of £2646 from the late Miss Annie Latham and £1327 from the late Miss J. M. Jackson.—The Royal Manchester Children's Hospital has received £1000 from the executors of the late John G. Litton.—The Rev. William John Pinckney, St. Leonards-on-Sea, on the death of his wife, gave £1000 each to the Alexandra Home for Chronic Invalids, St. Leonards-on-Sea, the Buchanan Hospital, St. Leonards-on-Sea, and £700 to the Borough of Hastings District Nursing Association.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a recent examination the following candidates were approved :—

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.

Part I.—Oliver Chance, S. J. Dikshit, F. J. Farr, C. W. S. Fernando, N. P. Henderson, S. A. Jabbar, Leila K. Keatinge, D. F. Lawson, W. P. Philip, H. C. Pilsbury, B. K. Roy, Tokue Takahashi, R. N. Tandon, E. Thorpe, E. J. E. Topham, A. K. S. Venkatachala, J. D. H. Wearing, and F. G. Wood.

Part II.—Nessim Abu-Saif, J. H. Baird, J. J. N. Daniels, W. E. Donaldson, Frances Dooley, Emily L. Franklin, J. F. Grant, S. A. Jabbar, S. L. Mucklow, R. G. Murray, S. D. S. Park, Mostafa Ragheb, W. G. Rich, H. T. Rymer, C. F. O. White, and John Wilkie.

UNIVERSITY OF LONDON.—A course of four lectures on the Human Kidney and the Physiological Study of Human Urine will be given by Prof. J. B. Leathes, F.R.S., at Guy's Hospital Medical School, St. Thomas's-street, S.E., on May 15th, 16th, 22nd, and 23rd, at 5 P.M. Prof. M. S. Pembrey, F.R.S., will take the chair at the first lecture. Admission is free, without ticket.

At a recent examination at the University of London the following candidates were successful :—

DIPLOMA IN PSYCHOLOGICAL MEDICINE.

With Special Knowledge of Psychiatry.—A. W. H. Smith and F. O. Walker.

With Special Knowledge of Mental Deficiency.—N. H. M. Burke and J. N. Jacobson.

SOCIETY OF APOTHECARIES OF LONDON.—At recent examinations the following candidates were successful in the undermentioned subjects :—

Surgery.—G. E. Bent, Manchester ; A. R. D'Abreu, Leeds ; D. Jacobson, St. Bart.'s Hosp. ; D. K. Reynolds, King's College Hosp. ; I. O. B. Shirley, St. Thomas's Hosp. ; and A. E. Vawser, London Hosp.

Medicine.—H. B. Blaker and H. T. Ince, St. Mary's Hosp. ; H. T. Rylance, Middlesex Hosp. ; and W. Ziv, Bale and London Hosp.

Forensic Medicine.—B. Elliott, Durham ; J. H. Johnston, St. Bart.'s Hosp. ; N. H. Kettlewell, Bristol and Middlesex Hosp. ; and E. A. Lipkin, Liverpool.

Midwifery.—A. E. Gibbs, London Hosp. ; and C. C. F. White, Guy's Hosp.

The Diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery and midwifery : B. Elliott, H. T. Ince, D. Jacobson, D. K. Reynolds, H. T. Rylance, and I. O. B. Shirley.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary comitia of the College was held on April 26th with Sir John Rose Bradford, the President, in the chair. The following Members of the College were elected Fellows :—

Carlton Oldfield, Newman Neild, Vincent Sutherland Hodson, Sydney Arthur Owen, John Bright Banister, Laurence Ball, Rodolf Charles Wingfield, William Willis Dalziel Thomson, Thomas Beaton, Wilfred John Pearson, Neil Hamilton Fairley, Geoffrey Marshall, Ernest Basil Verney.

Nominated by the Council under by-law XXXVIII (*b*):—Edward Mellanby.

The following candidates were elected Members of the College :—

Harold Awrounin, Douglas Charles Beaumont, Mona Margaret Blanch, The Hon. Olive Burton Buckley, George Campbell, Bernard Maule Clark, Arthur Edgar De Chazal, Ewen Thomas Taylor Downie, James Gilbert Falconer, Kenneth Alexander Hamilton, Tom Allistair Falconer Heale, Leslie Charles Hill, Arthur Sturgess Hollins, Thomas Cecil Hunt, Bertram Humphreys Jones, Abdulla Karmally, Samuel Maurice Katz, Alice Margaret Craig Macpherson, John Kempson Maddox, William Hotson Palmer, Jean Lilian Smith, and Richard Robertson Trail.

The report of the Committee of Management of the Examining Board in England of the Royal College of Physicians of London and the Royal College of Surgeons of England, that it was desirable and practicable to hold a clinical examination in obstetrics and gynæcology in connexion with the final examination in midwifery for the diplomas of L.R.C.P., M.R.C.S., was adopted.

A report of the Committee of Management, recommending that the College should conform to the practice of other licensing bodies with regard to the period at which the professional curriculum was to be regarded as beginning, was adopted.

Licences to practise were conferred upon 156 candidates (131 men and 25 women) who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the necessary by-laws of the College. The following are the names and medical schools of the successful candidates :—

M. E. Albury, Cambridge and St. Thomas's ; B. A. J. Arthure, Birmingham and Charing Cross ; R. E. Artrick, Univ. College ; Mabel A. Baker, Royal Free ; Ellen M. Barnes, Univ. College ; N. R. Barrett, Cambridge and St. Thomas's ; Charlotte Belinky-Raginsky, Charing Cross ; A. D. C. Bell, Oxford and St. Thomas's ; Ruth Bocock, Royal Free ; H. H. Boyden, St. Bart.'s ; J. M. Buchanan, Middlesex ; W. Buckley, Cambridge and St. Bart.'s ; F. Bush, Cambridge and Univ. College ; G. Campbell, St. Thomas's ; G. C. Campbell, Guy's ; A. G. Carmichael, Middlesex ; R. E. P. Cohen, Birmingham ; E. T. Conybeare, Guy's ; N. E. Cook, St. Bart.'s ; A. D. W. Cooke, S. Mary's ; B. W. Cooke, St. Bart.'s ; R. W. Cooper, Middlesex ; T. V. Cooper, Westminster ; E. Corner, London ; J. E. Crooks, Guy's ; A. Dala, Liverpool ; C. H. Dale, St. Bart.'s ; T. C. Dance, Birmingham ; T. B. Davie, Cape and Liverpool ; Mona C. Davies, Cardiff and Charing Cross ; R. G. de Kock, Cape and Guy's ; O. C. Dobson, Durham ; W. J. G. Drake-Lee, Cambridge and St. Thomas's ; L. L. Eksteen, Liverpool ; W. A. Elliston, Cambridge and St. Bart.'s ; C. Emery, Univ. College ; R. B. Floyd, Cambridge and Machester ; M. Franzler, St. George's ; J. P. Fraulo, Guy's ; G. H. Gange, Cambridge and Middlesex ; A. P. Gaston, St. Bart.'s ; Yetta Gimpelson, St. Mary's ; P. S. Gitlin, Guy's ; J. C. Gordon, Cambridge and St. Bart.'s ; S. E. Goulstine, Durham ; Tatiana Gourlandc, Moscow and St. Mary's ; G. N. Grose, St. George's ; A. E. Handousa, Cairo and St. Bart.'s ; H. N. W. Harley, Guy's ; G. A. S. Harris, St. Bart.'s ; M. R. W. Hart, Madras and St. Bart.'s ; J. S. Hensman, Cambridge and St. Bart.'s ; A. N. Hobbs, St. Bart.'s ; R. Hodkinson, Cambridge and St. George's ; L. Hoffman, St. Bart.'s ; E. J. Horn, London ; Kathleen Horne, Leeds ; M. C. Hounsfield, Cambridge and St. Bart.'s ; Muriel S. Hulke, Univ. College ; T. A. A. Hunter, Cambridge and London ; J. G. H. Ince, Univ. College ; S. D. Isaacs, Cambridge and Birmingham ; R. A. Isenstein, Adelaide and London ; Florence H. Johnson, Oxford and Univ. Coll. ; Olive M. G. Jones and Emma J. King, Royal Free ; H. N. Knox, King's Coll. ; L. B. Langmead, Guy's ; I. B. Lawrence, Cardiff and St. Bart.'s ; J. M. Lees, Cambridge and St. Bart.'s ; L. H. Lerman, Durham and Middlesex ; Marjorie H. Lester, Royal Free ; F. W. Linton-Bogie, Cambridge and St. Bart.'s ; Olive T. Lloyd, Cambridge and Westminster ; A. J. Lomax, Manchester and Univ. Coll. ; A. Maberley, Cambridge and St. Thomas's ; G. W. T. McDonnell, London ; S. McGladdery and K. W. Mackie, St. Bart.'s ; R. C. Mahajan, London ; H. H. Mahmood, Middlesex ; G. D. Malhoutra, St. Thomas's ; T. E. Malins, St. Bart.'s ; E. T. Mankabadi, Cairo and London ; F. Mansour, Cairo and Charing Cross ; Mary L. Marsh, Charing Cross ; W. E. Mashiter, St. Thomas's ; N. M. Matheson, Middlesex ; J. I. Mathias, Cardiff and Univ. College ; Olive S. May, King's Coll. ; G. van R. Mostert, Guy's ; N. S. Narasimhan, Bombay and Guy's ; R. Newton, Manchester ; J. W. Notley, Birmingham ; Joan M. Oldaker, Royal Free ; C. W. Olsen, St. Bart.'s ; G. Packham, Guy's ; E. A. E. Palmer, St. Bart.'s ; Irene A. Papenfus, Univ. College ; D. N. Parfitt, Cardiff ; Mary E. Pease, Univ. College ; L. S. Penrose, St. Thomas's ; W. P. Phillips Cardiff ; R. E. M. Pilcher, Cambridge and St. Thomas's ; N. E. Pitt and R. E. Rix, Guy's ; L. G. R. Roberts and M. Roberts, Liverpool ; R. W. N. Robins, St. Thomas's ; D. A. Rolfe, Birmingham ; M. C. Rous, Cape and London ; F. G. V. Scovell, St. Bart.'s ; J. Seidenberg, Middlesex ; A. Shedrow, Beirut and St. Bart.'s ; R. Shelley, St. Thomas's ; L. Shillito, Cambridge and St. Thomas's ; M. Shlosberg, Manchester ; H. N. Skelton, Sheffield ; D. R. E. Smith, London ; E. J. J. Smith, St. Bart.'s ; B. Spencer, St. Thomas's ; V. P. Squire, Leeds ; H. Stevens, St. Bart.'s ; H. H. Stewart, St. Thomas's ; G. S. Storrs, Cambridge and St. Thomas's ; K. G. Sugden, St. Bart.'s ; E. E. Swaby, Westminster ; Ivy E. Tanner, Royal Free ; I. C. C. Tchaperoff, St. Thomas's ; H. Temkin, Univ. College ; H. S. Thomas, Middlesex ; J. E. Thomas, Cardiff ; J. P. Thyne, King's Coll. ; Elsie J. Todd-White, Royal Free ; R. D. M. Townend, Univ. College ; W. R. van Langenberg, Ceylon and Middlesex ; J. F. Varley, St. Bart.'s ; J. Vaughan-Bradley, St. Thomas's ; M. R. Wadia, Bombay ; W. H. S. Wallace and G. A. B. Walters, St. Thomas's ; F. S. Warner, Guy's ; A. R. Waterhouse, Leeds ; H. G. Wells, Westminster ; Eleanor L. C. West, Univ. College ; Alice E. S. Wharton, Royal Free ; Addie Wilkes, Charing Cross ; F. Williams, London ; J. C. F. L. Williamson, St. Bart.'s ; T. G. Willis, London ; J. A. Wood, Sheffield ; E. C. Woodhead, Cape and Guy's ; Dorothy L. Woodroff, King's Coll. ; Janet D. E. Young, Royal Free ; R. A. Zeitlin and J. S. Zidel, St. Bart.'s ; and S. Zuckerman, Univ. College.

THE LATE DR. W. P. BRIGGS.—Dr. William Perry Briggs, who died on April 20th, after a short illness, had practised at Aspatria, in Cumberland, for nearly 50 years. He took the Scottish Conjoint diploma in 1877, having studied medicine at the University of Glasgow and at Anderson College. After a house appointment at the Glasgow Royal Infirmary, he went into partnership with the late Dr. William Hodgson, and as soon as the Aspatria Urban Council was created, he became its medical officer of health. A colleague writes of him that he had "an enthusiasm that never waned, a cheerfulness that seldom shrank, an interest in life that was always present. His ungrudging devotion to his profession, and his own self-respect, made him loved and respected, and he will be mourned as a man who carried out private and public duties conscientiously, scrupulously, independently, and fearlessly." Dr. Briggs was 72 years of age, and is survived by a widow and the eldest son of her first marriage.

Dr. Isaac Alexander Davidson, of Antrim-road, Belfast, is, we are glad to be able to state, alive and in the active practice of his specialty. The notice of his death which appeared in THE LANCET of April 14th was based upon incorrect information received from our local correspondent, misled by the similarity between the names of Dr. I. A. Davidson, ophthalmic surgeon, and his cousin, Dr. Thomas A. Davidson, a general practitioner, of 13, Clifton-street, Belfast, whose death occurred on March 28th. We desire to give every possible publicity to the correction.

CHADWICK PUBLIC LECTURE.—A lecture on Sunlight, Natural and Artificial, and its Use in Modern Medicine, illustrated by lantern slides, will be given by Major Walter Elliot, M.P., on Tuesday, May 15th, at 8.15 P.M., at the House of the British Medical Association, Tavistock-square, London, W.C.

ABERDEEN UNIVERSITY CLUB, LONDON.—The seventy-ninth half-yearly dinner will be held at the Trocadero Restaurant on Thursday, May 17th. The secretary's address is 9, Addison-gardens, W. 14.

"CARNIVAL BEDS."—Sir Percival Bower has unveiled tablets above three beds in the Queen's Hospital, Birmingham, recording that they were endowed by the citizens of Birmingham with money raised by the University Students' Carnival. These carnivals have produced a total of £25,000 since 1922.

BRITISH INSTITUTE OF PHILOSOPHICAL STUDIES.—A course of six lectures on Mind in Nature is being given at 5.30 P.M., on Tuesdays in May and on June 5th, by Prof. C. Lloyd Morgan, F.R.S. A course of four lectures on the Philosophy of Religion will be given by Prof. Clement C. J. Webb, on Wednesdays, May 23rd, 30th, June 6th, and 13th, at 4.45 P.M. Both courses will be given at the University of London Club, 21, Gower-street, W.C.1. Syllabuses and particulars may be had from the Director of Studies, 88, Kingsway, London, W.C. 2.

ROYAL SOCIETY OF MEDICINE.—It has been decided to widen the scope of the Associateship. A few years ago the Associateship was instituted in order to encourage suitable juniors in the profession to take advantage of the privileges of this Society, and the position was at first restricted to qualified members of the medical profession. But a general meeting of Fellows, recently held, has reframed the by-law in regard to Associateship as follows:—

"The Council shall be and is hereby empowered from time to time and at its sole discretion to elect medical, dental, and veterinary practitioners (whether British or otherwise) who within five years of their first professional qualification apply for election, to be non-corporate Associates of the Society."

This means that promising young odontologists and veterinary surgeons can now apply for Associateship and be elected by the Council of the Society if they are approved. It should be added that Associateship is only available to juniors within the first five years of their qualification, as it finishes automatically at the end of that time. The Associate has the right to attend scientific meetings and to use the library, though he may borrow one book at a time only, and when he has paid three annual subscriptions may, if elected to the Fellowship, be admitted without payment of entrance fee.

WORK OF THE NATIONAL BABY WEEK COUNCIL.—The display of moving pictures occupies an increasing share of the National Baby Week Council's activities. The newly issued annual report mentions eight films which were well in demand during the year. The most recent of these are "Black Lake Home," depicting the convalescent home for the wives and babies of professional men which has its locus in Sir James Barrie's old home at Farnham, and "Who was to blame?"—a propaganda film. Health plays and lantern lectures were also a feature of the year's work. A special film display was staged at the annual conference, when the whole evening's programme consisted of health films, and some 600 people attended. The points selected by the Council and recommended for special attention in this year's local and national programmes are: (1) immunisation as a means of protecting young children against disease; (2) prevention of maternal mortality; (3) new developments in maternity and child welfare work. Baby Week is to be celebrated as usual during the first week in July, and a conference will be held on July 4th, 5th, and 6th, when the following subjects are to be discussed: The Relative Value of Intensive Methods Employed for the Reduction of Infant Mortality; the Causes and Prevention of Maternal Mortality; the Requirements of the Unmarried Mother and Her Child; the Place of Antenatal Care in the Reduction of Maternal Mortality. This is to be followed by an international child welfare congress to be held from July 8th to 12th in Paris.

GLASGOW UNIVERSITY CLUB, LONDON.—The annual summer dinner of this club will be held at the Trocadero Restaurant, Piccadilly, W., on Friday, May 25th, at 7.15 P.M. for 7.30 P.M. Sir Donald MacAlister will preside. Any Glasgow University men who, though not members of the club, desire to attend, should communicate with the hon. secretaries at 62, Harley House, N.W. 1.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—The Morison Lectures will be delivered by Dr. John Carswell at the College, on Monday, Wednesday, and Friday, May 7th, 9th, and 11th, at 5 P.M. His subject will be Psychology and Medicine.

MEDICAL SOCIETY OF LONDON.—The annual general meeting and conversazione, arranged for Monday, May 14th, has been postponed to Monday, May 21st. At 9 P.M. on this evening Sir Archibald Garrod will deliver an oration entitled Lessons on Rare Maladies.

TAVISTOCK-SQUARE CLINIC.—The annual general meeting of the Tavistock-square Clinic for Functional Nervous Disorders will be held in the form of a luncheon at the Hotel Russell, Russell-square, London, W.C., on Monday, May 21st, at 1 P.M. for 1.15 P.M.

ST. CYRES LECTURE.—The second St. Cyres Lecture of the National Hospital for Diseases of the Heart will be delivered by Prof. K. F. Wenckebach at the Barnes Hall of the Royal Society of Medicine, on Wednesday, May 16th, at 4.30 P.M. His subject will be the Heart and Circulation in Tropical Avitaminosis (Beri-beri). Tickets may be obtained from the secretary of the hospital, Westmoreland-street, London, W. 1.

HULL ROYAL INFIRMARY.—The annual report of this institution states that last year it treated just under 36,000 patients, or more than 10 per cent. of the population of the city. In addition the casualties exceeded 18,000 in number.

SHEFFIELD ROYAL HOSPITAL.—The board of management reports that the average daily cost of an in-patient last year was 7*s.* 4*d.*, a reduction of 6*d.* upon the preceding year. The yearly cost per occupied bed has fallen from £142 16*s.* 3*d.* to £133 5*s.*

FIRE AT WINDSOR HOSPITAL.—A fire which originated in a servants' room last week destroyed two wards of the King Edward VII. Hospital at Windsor. Fortunately it broke out in the afternoon and the 120 patients, six of whom had been operated upon earlier in the day, were removed safely. The hospital was rebuilt in 1909.

MIDDLESEX CANCER HOSPITAL.—During the past year 564 patients were treated, as compared with 621 in 1926, and they were given longer treatment. One-half of the beds in the cancer wing of Middlesex Hospital are now devoted to operable cases.

DEATH OF DR. J. L. RANKINE.—John Lawson Rankine, who died on April 19th, had for many years been medical officer of health for the rural district of Longtown in Cumberland, and held other appointments in the neighbourhood. He studied medicine at Guy's Hospital and took his M.R.C.S. Eng. in 1907, subsequently serving as house surgeon at the Dumfries and Galloway Royal Infirmary, and as clinical assistant in the Royal Eye Hospital, Southwark. After private practice at Mallsburn, near Bewcastle on the Border, and at Kirklinton, he took over the practice of Dr. R. E. Marwick, at Longtown. During the war he held a captain's commission in the Royal Army Medical Corps and served in the East. He leaves a widow with a son and a daughter.

WOMEN IN THE SERVICE OF HOSPITALS.—A conference, convened by the National Union of Societies for Equal Citizenship, will be held on May 8th, to discuss three aspects of this subject, notably (1) Opportunities for training of women medical students. (2) The appointment of women to paid and honorary medical posts in hospitals, and (3) the appointment of women on boards or committees of management of hospitals (including mental hospitals). The speakers at the conference, which will be held at Mary Sumner House, 24, Tufton-street, Westminster, from 2.30 till 6 P.M., will include Dr. Margaret Emslie, Miss C. Fulford (chairman, Fulham Board of Guardians), Dr. Graham Little, M.P., and Miss Eleanor F. Rathbone. Visitors' tickets (price 1*s.*), and all further particulars can be obtained on application to the N.U.S.E.C., 15, Dean's Yard, London, S.W. 1.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdrs. E. L. Markham to *Conquest* and G. V. Hobbs to *Cardiff*.
Surg. Lt. C. B. Nicholson to *Victory*.

ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Sub-Lt. W. McO. Macgregor is confirmed in his rank.
Surg. Lt. G. McCoull to be Surg. Lt.-Comdr.

ROYAL ARMY MEDICAL CORPS.

Capts. G. J. McGorty and J. F. W. Meenan to be Majs. (Prov.).

ARMY RESERVE OF OFFICERS.

Lt.-Cols. H. E. J. A. Howley and A. F. Carlyon, having attained the age limit of liability to recall, cease to belong to the Res. of Offs.

TERRITORIAL ARMY.

Capt. W. Leslie to be Maj.
Lt. C. C. P. Anning is restd. to the estabt.
J. A. Kerr to be Lt.

ROYAL AIR FORCE.

P. B. L. Potter is granted a short service commission as a Flying Officer for three years on the Active List, and is seconded for duty with the Princess Alice Memorial Hospital, Eastbourne.

RESERVE OF AIR FORCE OFFICERS.

Flight Lt. L. Game ceases to be employed with the Regular Air Force.

INDIAN MEDICAL SERVICE.

The undermentioned officers retire: Col. Chintaman Ramchandra Bakhle, Col. Krishnaji Vishnoo Kukday, and Lt.-Col. E. L. Ward.

Temp. Capt. S. V. P. Pill relinquishes his temp. commn. and retains his rank.

The following have been selected by the Secretary of State for India for appointment on probation to permanent commissions in the Indian Medical Service: Mr. S. Hartley, Mr. J. Acheson, Mr. E. A. O'Connor, Mr. V. T. J. Lynch, Mr. J. P. J. Little, Mr. P. L. O'Neill, and Mr. D. K. Crawford.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED APRIL 21ST, 1928.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 326 (last week 321); scarlet fever, 1361; diphtheria, 1049; enteric fever, 56; pneumonia, 1311; puerperal fever, 45; puerperal pyrexia, 102; cerebro-spinal fever, 4; acute poliomyelitis, 4; acute polio-encephalitis, 3; encephalitis lethargica, 30; continued fever, 2; dysentery, 39; ophthalmia neonatorum, 82. No case of cholera, plague, or typhus fever was notified during the week.

Cases of small-pox were notified from the following 24 counties: London, 5; Bedford, 5; Berks, 1; Chester, 2; Derby, 15; Durham, 65; Gloucester, 10; Hertford, 1; Kent, 2; Lancaster, 43; Leicester, 1; Lincoln, parts of Lindsey, 4; Middlesex, 1; Norfolk, 3; Northumberland, 16; Nottingham, 10; Somerset, 2; Stafford, 10; Suffolk East, 1; Warwick, 1; Yorks, North Riding, 4; West Riding, 75; Glamorgan, 26; Monmouth, 23.

The number of patients in the Infectious Hospitals of the Metropolitan Asylums Board on April 24th–25th was as follows: Small-pox, 11 under treatment, 2 under observation; scarlet fever, 1544; diphtheria, 2197; enteric fever, 35; measles, 1485; whooping-cough, 145; puerperal fever, 15 (plus 14 babies); encephalitis lethargica, 66; "other diseases," 26. At St. Margaret's Hospital there were 15 cases of marasmus and 11 babies (plus 7 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns, including London, there was no death from small-pox, 3 (1) from enteric fever, 148 (70) from measles, 5 (2) from scarlet fever, 40 (11) from whooping-cough, 51 (15) from diphtheria, 38 (4) from diarrhœa and enteritis under two years, and 95 (10) from influenza. The figures in parentheses are those for London itself.

The fatal cases of enteric fever outside London occurred at Liverpool and Wakefield, 1 each. Of the 48 fatal cases of measles outside London, 7 were reported from Sheffield, 4 from Plymouth, 3 each from Tottenham, Edmonton, and Salford, while the figures in Edinburgh, Glasgow, and Dublin for the same week were 4, 3, and 4. Of the 29 fatal cases of whooping-cough outside London 7 were reported from Liverpool and 4 from Birmingham.

The number of stillbirths registered during the week was 302 in the great towns, including 65 in London.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MONDAY, May 7th.—8.30 P.M., SOCIAL EVENING. Fellows and guests will be received in the Library by the President and Lady Berry. 9.15 P.M., Mr. P. B. Tustin will give an illustrated address entitled Milk—From Cow to Consumer. A number of exhibits, kindly lent by the lecturer, will be on view. Music and light refreshments.
TUESDAY.—8.30 P.M., PSYCHIATRY. Annual General Meeting.
WEDNESDAY.—4.45 P.M., SURGERY: SUBSECTION OF PROCTOLOGY. Annual General Meeting. 5 P.M., Discussion on the Early Diagnosis of Carcinoma of the Rectum and Colon, to be opened by Sir William de Courcy Wheeler (Surgery), Dr. Graham Hodgson (Radiology), Dr. Cuthbert Dukes (Pathology). Mr. Ernest Miles will also speak.
THURSDAY.—8.30 P.M., NEUROLOGY. Annual General Meeting, to be followed by Pathological Meeting.
FRIDAY.—5.30 P.M., CLINICAL. (Cases at 5 P.M.) Dr. Donald Hunter: (1) Case of Post-Operative Tetany. Dr. M. A. Cassidy and Mr. C. Max Page: (2) Case of Carotid Body Tumour Previously Shown with Tumour After Excision. Dr. F. Halls Dally: (3 and 4) Two Cases of Pulmonary Tuberculosis Treated by Thoracoplasty. (5) Case of Total Transposition of Viscera. Dr. Adolphe Abrahams: (6 and 7) Two Cases of Thrombopenia in Brothers. Dr. Parsons-Smith: (8) Case of Obesity. (9) Case of Hypothyroid Heart.
SATURDAY AND SUNDAY.—BALNEOLOGY. Annual Provincial Meeting at Bath.

HARVEIAN SOCIETY OF LONDON.
THURSDAY, May 10th.—4.30 P.M., Clinical Meeting at Paddington Infirmary, Harrow-road, W.

INSTITUTE OF HYGIENE, 28, Portland-place, W.
WEDNESDAY, May 9th.—3.30 P.M., Prof. F. Langmead: Developed Heart Disease.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY POST-GRADUATE COURSE ON CANCER.
WEDNESDAY, May 9th.—3.30 P.M. (in the Medical School, Leeds), Mr. G. Grey Turner: Cancer of the Rectum.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.
WEDNESDAY, May 9th.—8 P.M., Captain Reginald Willington Lane: The Sterilisation of Milk.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

CONFERENCE ON RHEUMATIC DISEASES: The Pump Room, Bath.
THURSDAY, May 10th.—Presidential Address by Sir George Newman. First session (Social Aspects).
FRIDAY.—Second Session (Causation) and Third Session (Treatment).

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith-road, W.
MONDAY, May 7th.—10 A.M., Dr. Dowling: Skin Department. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Dr. Trevor Davies: Gynæcological Department.
TUESDAY.—10 A.M., Medical Registrar: Medical Wards. 2 P.M., Dr. Shaw: Medical Out-patients. 2 P.M., Mr. Hambleen Thomas: Throat, Nose, and Ear Department.
WEDNESDAY.—10 A.M., Dr. Burnford: Medical Wards. 2 P.M., Dr. Scott Pinchin: Medical Out-patients. 2.30 P.M., Mr. Donald Armour: Surgical Wards.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Department. 2 P.M., Mr. Simmonds: Surgical Out-patients. 2 P.M., Mr. MacDonald: Genito-Urinary Department.
FRIDAY.—10 A.M., Dr. Pritchard: Medical Wards. 12 noon, Dr. Ironside: Clinical Demonstration. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Department.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Department. 10 A.M., Dr. Owen: Children's Medical Out-patients.
TUESDAY, May 8th and 11th.—4.30 P.M., Special Lectures, Mr. Sinclair: Gastric and Duodenal Ulceration.
Daily, 10 A.M. to 5 P.M., SATURDAYS, 10 A.M. to 1 P.M., In-patients, Out-patients, and Special Departments. Anæsthetic and Operative Surgery Courses.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham.
MONDAY, May 7th.—2.30 to 5 P.M., Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 to 5 P.M., Medical, Surgical, Throat, Nose and Ear Clinics. Operations.
WEDNESDAY.—2.30 to 5 P.M., Medical, Skin, and Eye Clinics. Operations.

THURSDAY.—11.30 A.M., Dental Clinics. 2.30 to 5 P.M., Medical, Surgical, and Ear, Nose and Throat Clinics. Operations.
FRIDAY.—10.30 A.M., Throat, Nose and Ear Clinics. 2.30 to 5 P.M., Surgical, Medical, and Children's Diseases Clinics. Operations.
On Monday and Friday, at 2.30 P.M., there will also be demonstrations of Surgical and Medical Cases by Mr. Ralph Coyte and Dr. L. R. Yealland respectively.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, May 7th to SATURDAY, May 12th.—CANCER HOSPITAL, Fulham-road, S.W. Tues., at 2 P.M., Operations and Demonstrations by Mr. Ernest Miles. —HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C. Tues., at 2.30 P.M., Ward Round by Dr. R. S. Frew.—ROYAL LONDON OPHTHALMIC HOSPITAL, City-road, E.C. Wed., at 12 noon, Demonstration by Mr. Affleck Greeves. The above are free to medical men.—CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C. Intensive Course—Clinical—Operative Surgery Class.—MAUDSLEY HOSPITAL, Denmark Hill, S.E. Special Post-Graduate Course in Psychological Medicine, afternoons only.—CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd-street, W.C. After Course in Ophthalmology—Clinical, Lecture-demonstrations, and Operations performed daily.—INFANTS' HOSPITAL, Vincent-square, S.W. Afternoon Course.—LONDON SCHOOL OF TROPICAL MEDICINE, Endsleigh-gardens, W.C. Tues. and Thurs., at 2 P.M., Lecture-demonstrations by Dr. Carmichael Low and Dr. Philip Manson-Bahr.—ROYAL FREE HOSPITAL, Gray's Inn-road, W.C. Wed., 5.15 P.M., last Lecture-demonstration in Series in Electro-Therapy, given by Dr. C. B. Heald.—ST. JOHN'S HOSPITAL, Leicester-square, W.C. Special Course—Clinical, and Series of Lectures throughout the month. Pathology Course can be arranged if desired. Further particulars from Secretary.

UNIVERSITY COLLEGE, Gower-street, London, W.C.
MONDAY, May 7th, TUESDAY, May 8th, and THURSDAY, May 10th.—5 P.M., Dr. G. E. Coghill (Wistar Institute, Philadelphia): Anatomy and the Problem of Behaviour.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, Leicester-square, W.C.
MONDAY, May 7th.—5 P.M., Dr. H. Haldin-Davis: Drug Eruptions.
TUESDAY.—5 P.M., Dr. H. W. Barber: Alopecia Areata and Vitiligo.
THURSDAY.—5 P.M., Dr. S. E. Dore: Mycosis Fungoides.
FRIDAY.—5 P.M., Dr. G. B. Dowling: Skin Diseases Due to Protein Sensitisation.

ROYAL NORTHERN HOSPITAL, Holloway-road, N.
TUESDAY, May 8th.—3.15 P.M., Mr. F. D. Saner: Treatment of Acute Suppuration.

BELGRAVE HOSPITAL FOR CHILDREN, 1, Clapham-road, S.W.
WEDNESDAY, May 9th.—4.30 P.M., Mr. Cecil P. G. Wakeley: Clinical Demonstration.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE COURSE.
TUESDAY, May 8th.—4.15 P.M., Dr. F. Craven Moore: Constipation.
FRIDAY.—4.15 P.M., Mr. J. P. Buckley: Demonstration of Surgical Cases.

UNIVERSITY OF BIRMINGHAM.
MONDAY, May 7th.—4 P.M., Prof. F. H. G. Van Loon: A Study of Insanity Among Primitive Peoples in its Bearing on the Problem of Heredity.
THURSDAY.—4 P.M., Dr. L. G. Parsons: Recent Advances in Our Knowledge of Rickets and Allied Diseases. (First Ingleby Lecture.)

Appointments.

FOWLER, W. M., M.B., Ch.B. Aberd., has been appointed one of the Medical Referees under the Workmen's Compensation Act for the Lochaber District (Sheriffdom of Inverness, Elgin, and Nairn).

Paddington Green Children's Hospital: MCMICHAEL, J., M.B., Ch.B. Edin., House Physician; and ALEXANDER, G. L., M.B., Ch.B. Edin., House Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: MACIVER, I. H., M.B., Ch.B. Edin. (Fort William, Inverness); WHYTE, J. A., M.B., Ch.B. Aberd. (Aberchirder, Banff); MULLIGAN, J. A., M.B., Ch.B. Aberd. (Bervie, Kincardine); and MCKENZIE, J., M.B., Ch.B. Aberd. (Rhynie District, Aberdeen).

Vacancies.

For further information refer to the advertisement columns.

Acton Borough Education Authority.—School Dental Surg. £500.
Acton Hospital, Gunnersbury-lane, W.—Res. M.O. £150.
Barnsley, Mount Vernon Sanatorium.—Asst. Tub. O. £450.
Bedford Borough.—M.O.H., &c. £900.
Belfast, Queen's University.—Prof. of Pathology. £900.
Birkenhead Union Infirmary.—Two Res. Asst. M.O.'s. Each £200.
Bolingbroke Hospital, Wandsworth Common, S.W.—Hon. Phys.
Brighton, Royal Alexandra Hospital for Sick Children. H.P. At rate of £100.
Bristol University.—Demonstration in Pathology.
Cardiff, Glan Ely Hospital.—Two Res. M.O.'s. £350 and £200 respectively.
Carlisle, Cumberland and Westmorland Mental Hospital.—Med. Supt. £850.
Chester Royal Infirmary.—H.S. £150.
Durham County and Sunderland Eye Infirmary.—H.S. £450.
Durham County Council.—Asst. Welfare M.O. £600.
Exeter, Royal Devon and Exeter Hospital.—Asst. H.S. At rate of £100.
Exminster, Devon Mental Hospital.—Jun. Asst. M.O. £300.
Hong Kong, University Faculty of Medicine.—Professor of Physiology. £800.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Med. Registrar. Honorarium of £100.
Hospital of St. John and St. Elizabeth, 60, Grove End-road, St. John's Wood, N.W.—Res. H.P. At rate of £100.
Leeds, City of.—Asst. M.O. for Maternity and Child Welfare. £600.
Leeds Public Dispensary.—Hon. P. and Hon. S.
Lewisham Metropolitan Borough.—Asst. M.O.H., &c. £650.
Leyton, Borough of.—M.O.H. £1100.
Liverpool and District Hospital for Diseases of Heart.—Research Fellowship. £150.
London Skin Hospital, 40, Fitzroy-square, W.—Hon. P. or S. and Surg. Reg.
Maidstone, Kent Education Committee.—School Medical Inspector. £600.
Manchester, Ancoats Hospital.—H.P. At rate of £100.
New Zealand Mental Hospitals Dept.—Sen. Asst. M.O.'s. £765–£900.
Portsmouth and Southern Counties Eye and Ear Hospital.—Hon. S. to Ear, Throat, and Nose Dept.
Princess Louise Kensington Hospital for Children, St. Quintin-avenue, W.—Hon. Asst. Dent. Surg.
Queen's Hospital for Children, Hackney-road, E.—Phys. in charge of Skin Dept.
Royal Free Hospital, Gray's Inn-road, W.C.—Asst. Phys. Also Ophth. Surg.
Royal Northern Hospital, Holloway, N.—H.S. At rate of £70.
Southampton, Royal South Hants and Southampton Hospital.—H.S. £130.
St. Albans and Mid. Herts Hospital and Dispensary.—Res. H.S. £150.
Stoke Newington Metropolitan Borough.—Part-time M.O.H. £700.
Stoke-on-Trent, North Staffordshire Royal Infirmary, Hartshill.—Hon. Anæsthetist, Hon. Asst. Aural S., and Hon. Asst. Orthop. S.
University of London, South Kensington, S.W.—Laura de Saliceto Studentship. £150.
Walsall County Borough.—Asst. M.O. £600.
Walsall General Hospital—Sen. H.S. At rate of £200.
West Bromwich, Hallam Hospital.—Res. H.P. and Res. H.S. Each £250.
West Ham County Borough, Dagenham Sanatorium.—Asst. Res. M.O.
Willesden, Park Royal Hospital, Acton-lane.—Res. 1st Asst. M.O. £430.
Woolwich War Memorial Hospital, Shooter's Hill, S.E.—H.S. £120.
Worcester General Infirmary.—Sen. and Jun. Res. M.O.'s. £180 and £120 respectively.

The Chief Inspector of Factories announces the following vacant appointments for Certifying Factory Surgeons: Bradford-on-Avon (Wiltshire), St. Margaret's Hope (Orkney), Slough (Buckinghamshire) and Buckhaven (Fifeshire).

Births, Marriages, and Deaths.

BIRTHS.

BRADE-BIRKS.—On April 22nd, at a nursing home, Manchester, Hilda Kathleen Brade-Birks, M.Sc., M.B., Ch.B., L.R.C.P., M.R.C.S., D.P.H., wife of the Rev. S. Graham Brade-Birks, of a daughter.

HUNTER.—On April 29th at 117, Greencroft-gardens, N.W., to Mathilde, wife of Donald Hunter, M.D., M.R.C.P.—a daughter.

MACLEOD.—On April 25th, at Wargrave, Clevedon, Somerset, the wife of Dr. Macleod, of a daughter.

MORTIS.—On April 24th, at Shenley, Herts, the wife of Dr. R. H. Mortis, of a son.

SPROTT.—On April 27th, at a nursing home in Windsor, the wife of Norman A. Sprott, M.D., M.Ch., F.R.C.S., of a daughter.

MARRIAGES.

TUCK—ELMITT.—On April 25th, at St. Peter's, Littleover, Derby, Wilfred Henry to Mary Hermione Elmitt, M.B., B.S., only child of Mr. and Mrs. W. Elmitt, Lindum, Littleover, Derby.

DEATHS.

AGATE.—On April 23rd, at Queen Alexandra Hospital, Marseille, France, Henry St. Arnaud Agate, M.C., M.R.C.S., L.R.C.P.

BRIGGS.—On April 20th, at St. Mungo's Croft, Aspatria, Cumberland, Dr. William Perry Briggs, aged 72 years.

CHURCH.—On April 27th, at Woodside, Hatfield, William Selby Church, Bart., K.C.B., M.D., in his 91st year.

CORKERY.—On April 28th, at Alfreton, Timothy Corkery, M.D., aged 65.

LYNN-THOMAS.—On April 30th, 1928, at Ruthven, King Ussie, Inverness-shire, Ivan, the beloved husband of Dorothy Guthrie, and the only son of Sir John and Lady Lynn-Thomas, Llwynduris, Llechryd, Cardiganshire. Aged 31.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

HAIR IN FORENSIC MEDICINE.

CASES often occur in which the chief issue, or one of the chief issues, hangs literally on a hair. A murder has been committed and the arrested man has hairs on his clothing, or the weapon found in a suspect's possession has hairs adhering to its bloodstains; if the hair can be shown to belong to the victim the connexion is almost irrefutable. Again, a dispute arises over a consignment of furs; any evidence on the nature and quality of the hairs may determine the finding.

A study of hair from this aspect, if it is to be of any evidential value, must be as complete as possible, and the necessary microscopical examination is a formidable task. The technique was described at the Medico-Legal Society's meeting on April 26th by Dr. John Glaister, junior. With co-workers he has collected samples from every order, sub-order, and family of the mammalia and taken photographs of their transverse and longitudinal sections. The collection of photographs and specimens, adequately catalogued, is now at the disposal of those whose duty it may be to identify hair for the purposes of justice. The number of samples examined was about 2500. Human hair was studied in detail and samples were taken from all parts of the body of male and female persons of various ages. The medico-legal examination of a sample is a complicated process. It takes account of colour, length, texture, breadth; and the shape and condition of the tip, which may be clean-cut, rough-cut, or torn, and in which a certain amount of regeneration may have taken place. The condition of the base may constitute material evidence; the bulb will often show whether a hair has been pulled out or has fallen out. The cuticle may be smooth, serrated, or imbricated, according to the species of the animal which grew the hair, and the cortex and medulla, and the contour of the transverse sections, vary considerably with different orders. The duck-billed platypus, the lowest mammal from the evolutionary standpoint, has hairs with an extraordinary shield-shaped tip and a rudimentary medulla with scattered pigment; the cortex has longitudinal fibres with irregular granular spots. The spiny anteater and the elephant's tail are alone in possessing hairs composed of a hard substance like keratin, those of the former having a cigar-shaped tip. The hairs of deer have a peculiar stiff wave and small needle-like projections; the cross-sections show a honeycomb or lizard-skin arrangement of cells with a fine filmy lace-like centre. Giraffes are the only animals which provide hair with almost circular contour; seal hairs have a unique cigar-shaped section and hartebeest hairs a section rather like a kidney.

The hairs which possess the greatest legal importance are nearly all quite distinctive. Bovine hair and horsehair have a very concise and irregular pigment; rabbits have hair with a narrow cortex and a proportionately broad medulla. Rabbit hair is bone-shaped, broad at the ends and narrow in the centre, and the ends are filled with small cells that fit into one another. Sea animals have hair with a jagged, irregular cuticle that produces "felting." Shrew hairs have a medulla that alternately contracts and expands throughout their length, and a tail-like formation at the tip. Naturally curled hair shows an overlapping of the layers of the cuticle, like slates on a roof, which is absent in an artificial curl.

Hair from the primates is like that of man, but presents differences which the expert can appreciate without much difficulty. At the Medico-Legal Society's meeting Dr. Ainsworth Mitchell said that a negro's hair resembled a great ape's much more than it resembled a European's. When human hair goes grey the medulla becomes fragmentary and irregular. Hair re-growing after being cut has a little shoot or process at the tip that is quite distinctive. Dyed hair has the appearance of being varnished and of being covered with a film that obscures the original pigment and the layers. Pubic hair is very wiry and resistant, and all but the fairest has a very dense uniform medulla. It is similar to moustache hair, but the latter has an irregular triangular contour. Wiriness goes with angularity in section. Age can be estimated approximately, but not accurately, and a quantity of hair is necessary. Nits, food, wax, sweat, and other extraneous matter may be of great legal importance, and the presence of arsenic in particular parts of the hair may indicate the period at which the drug was taken. The national value of a collection like Dr. Glaister's, backed by his knowledge, is considerable, and it will be of great assistance in identifying doubtful samples of hair. He is now engaged on the comparative study of the hairs of different races.

COLLECTIONS OF REPRINTS.

THE corporate spirit animating certain hospitals and institutes whose staffs are actively prosecuting research in different directions, manifests itself in the periodical collection of published articles into one volume. These are often widely separate in scope and in value. The grey tomes issued by the Rockefeller Institute are well known in all libraries. The London School of Hygiene and Tropical Medicine provide blue-books of collected addresses and laboratory studies and, in recent years, the Middlesex Hospital has followed the same practive. Reprints of various sizes, bound together, in the volumes issued from this hospital, make the book less convenient to handle than are the more extravagant volumes where the articles have been reset. This year's crop of some 40 original publications makes a substantial and creditable volume.

AN INDIAN MEDICAL OFFICER OF THE PAST.

Joseph Hume, surgeon in India and a leader of the Radical Party in the House of Commons, deserves to be remembered by the medical profession. The orphaned son of a shipmaster of Montrose, born in 1777, and with difficulty educated as a doctor, he was in 1797 appointed assistant surgeon in the sea service of the East India Company. A man of great industry, no work came amiss to him, and it is noted that he quickly mastered Hindustani and Persian. So when he was sent to the Mahratta War in 1801, as surgeon of a Sepoy regiment, we find him employed as interpreter to the column commander. This gave him an opening of which he made such good use as to win the special commendation of Lord Lake, the Commander-in-Chief. In those days work of this kind did not go without reward; besides, he did not neglect his own interests; and in 1807 he was able to retire from the service with a fortune of £40,000. He travelled in Europe and the Mediterranean for a couple of years, translated the "Inferno" into blank verse, and in 1812 entered Parliament, of which he remained a Member, off and on, for 30 years. As one of the Radical Party he was indefatigable in exposing public extravagance, and the Dictionary of National Biography ascribes to him the inclusion of "retrenchment" in that party's programme. He resisted flogging in the Army, the press-gang, and imprisonment for debt, and tried to end the East India Company's monopoly of trade with India, that trade might increase and greater employment be caused in England. Twice he was Lord Rector of Aberdeen University. He roused, of course, much opposition, but when he died in 1855 Lord Palmerston, moving a new writ for Montrose, said that Joseph Hume had disinterestedly taken the lead in almost every branch of improvement, that he had an industry nothing could tire, and vast perseverance. There was no bitterness in his conflicts; "our friend was a man on whom we must all look back with admiration and regret." Another Member, with unnecessary pessimism, added that if ever there was an honest Member of Parliament Hume was one, and another said he had never made an enemy or lost a friend.

X RAYS IN THE TREATMENT OF ASTHMA.

THE results of treating asthma by so-called specific methods are not so successful as to discourage more empirical therapeutics. Treatment by X rays still has its supporters and some results of this method have lately been published by Vallery-Radot and his colleagues[1] in France. After discussing the methods and results of previous workers they describe 64 cases of their own in which the spleen and lungs were irradiated, the length of treatment varying according to the progress made. Nineteen of the patients were completely cured, it is said, for 12–18 months, whilst 16 were relieved, and 29 did not respond at all. The authors are unable to explain the beneficial influence of X rays, but suggest that they may act by modifying the acid-base balance of the organism. They do not mention the probable effect of suggestion, which often plays an important part in the relief of asthmatic symptoms. Nausea, vomiting, and exacerbation of the asthma sometimes occurred after prolonged treatment, but they did not notice the eosinophilia and effects on expectoration which have been reported by other observers. The treatment is, they consider, of great value in some cases, though in others it is of little use. Unfortunately the method of trial and error is admittedly the only means of distinguishing between the two groups.

THE YEAR OF AMBROISE PARÉ'S BIRTH.

Blancus writes: In a footnote to Prof. Meyer-Steineg's interesting article on the treatment of gunshot wounds (THE LANCET, April 21st, p. 840) it is stated, in agreement with Mr. Stephen Paget's biography, that Ambroise Paré was born in the year 1510. For many years 1517 was given in French and English reference books as the year of his birth, and Dorland's dictionary mentions 1509. Is it now decided that 1510 is correct?

[1] La roentgenthérapie dans le traitement de l'asthme et du coryza spasmodique: P. Vallery-Radot, P. Gilbert, P. Blamoutier et F. Claude, Ann. Médecine, 1928, xxiii., 214.